A. E. HEUSTIS JR., M. D.

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UNDERGRADUATE INSTRUCTION IN PREVENTIVE MEDICINE

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TORONTO

This survey has been undertaken to obtain information respecting the scope and content of undergraduate teaching of preventive medicine, public health and hygiene in any or all departments of medical schools in the United States and Canada and in twenty-four European countries. The survey has occupied a period of one year—Sept. 15, 1936, to Sept. 14, 1937.

The countries visited include:

1. Austria
2. Belgium
3. Bulgaria
4. Canada
5. Czechoslovakia
6. Denmark
7. Esthonia
8. Finland
9. France
10. Germany
11. Great Britain
12. Greece
13. Holland
14. Hungary
15. Irish Free State
16. Italy
17. Latvia
18. Lithuania
19. Norway
20. Poland
21. Rumania
22. Sweden
23. Switzerland
24. United States of America
25. Union of Soviet Socialist Republics
26. Yugoslavia

Sixty-four universities in Europe and twenty-one in the United States and Canada were visited.

Because of the fact that a survey of medical schools in the United States and Canada was begun in 1934-1935 and continued through 1935-1936 by the Council on Medical Education and Hospitals of the American Medical Association with the cooperation of the Association of American Medical Colleges and the Federation of State Medical Boards of the United States, the number of institutions visited by us in the United States was definitely limited.

The Council on Medical Education and Hospitals made the information obtained in this survey available to Dr. C. E. Smith and me. It consists of completed questionnaire forms (form R, Preventive Medicine and Public Health) submitted by sixty-nine medical schools. In addition we have been provided with notes made by Dr. H. G. Weiskotten during his visits to fifty-four schools, as a representative of the Council on Medical Education and Hospitals.

There were, in the United States and Canada in 1936, eighty-seven medical schools. Fifty-four of the sixty-nine schools from which completed questionnaires were obtained were visited and reported on by Dr. Weiskotten. There were fifteen schools not visited by him which submitted information. Of these, twelve were visited by one or both of us. The total number of medical schools in the United States which either completed forms or were visited and reported on by Dr. Weiskotten during 1934-1935 and 1935-1936 was seventy-one.

It is of some interest to observe that in the United States, to judge from these reports, there are in these seventy-one schools only eighteen that have full time university departments of preventive medicine, public health and hygiene. In Canada there are nine university medical faculties, and in five of these there are whole time departments. In twenty-five additional medical schools in the United States preventive medicine, public health and hygiene are included in or combined with bacteriology. In one Canadian university this is also true.

In the United States the following medical schools may fairly claim to have university departments of preventive medicine: Harvard, Michigan, Women's Medical College of Pennsylvania (combined with the Student Health Service), Stanford, Yale, Iowa, Tulane, Minnesota, Columbia, Cornell, New York University, Cincinnati, University of Pennsylvania, Meharry, Vanderbilt, California, Tufts and the Medical College of Virginia. With respect to the two last named, there may possibly be some question as to whether they should be so described.

In Canada there are whole time university departments at Western Ontario, Toronto, Queen's, McGill and Dalhousie.[1] All these have been visited and reported on by my colleague Dr. C. E. Smith.

Combined or incomplete departments of preventive medicine, public health, hygiene and bacteriology existed at the time these surveys were made in the medical schools in the following universities: Chicago, Baylor, Syracuse, Western Reserve, University of Virginia, Texas, Boston, Colorado, Georgetown, George Washington, Howard, Georgia, Loyola, Northwestern, Illinois, Louisville, Missouri, St. Louis, Washington, Duke, Oregon, Jefferson, Medical College of the State of South Carolina, New York Homeopathic and Creighton (?)—twenty-five in all. In Canada a similar arrangement exists in the University of Alberta.

It is true that in some of the medical schools included in the foregoing categories the personnel may have duties in health departments of states, provinces or cities as well as university appointments. In general, such arrangements are advantageous rather than the reverse.

Read before the Thirty-Fourth Annual Congress on Medical Education and Licensure, Chicago, Feb. 14, 1938.

Based on study undertaken in 1936-1937 by the author and Dr. C. E. Smith of Stanford University School of Medicine, for the Rockefeller Foundation.

1. In addition there is a department of social medicine at the University of Montreal.

EVOLUTION OF THE TEACHING OF HYGIENE

It may be profitable at this point to turn back and review briefly the evolution and development of the teaching of hygiene.

University concern with the teaching of hygiene, public health and preventive medicine dates back about seventy years. There seems to be general agreement that the first chair of hygiene was created in Munich in 1865 and was filled by Pettenkofer, then a worker in the Institute of Physiology. The first institute of hygiene, it is claimed, was established in Budapest in 1874, and Fodor was the first professor. In 1875 Vienna created an institute of hygiene, and in Munich in 1879 a separate institute was established for Pettenkofer. All this occurred in the period before bacteriology had begun its onward march. Pettenkofer and Fodor were names to conjure with.

The complete domination of the original concepts of Pettenkofer and Fodor concerning the scope of hygiene (regarded as a distinct scientific discipline in the medical sciences), and especially the nature of its content, is a fact of profound importance. To this day, in many medical schools, the introduction to the subject is effected by a detailed consideration of the environment of man and the various factors concerned therein. How many generations of medical students have been lulled to rest while listening to lengthy disquisitions on air, soil and water? These facts must be clearly recognized if the present position is to be properly understood. Much that is now struggling to find expression in the teaching of preventive medicine would long ago have been included in the program of medical studies if it had not been for this background.

Crystallization and later fossilization of the "environmental notion" has indubitably retarded progress in the teaching of public health and preventive medicine. Dogma and authority laid a dead hand on hygiene!

The commencement was not inauspicious. The original material on which the teaching was based, namely, some elements of meteorology, physics and chemistry, was expanded to embrace the new field of bacteriology or microbiology and that portion of physiology concerned with the study of growth and nutrition. Robert Koch was the first professor of hygiene in Berlin (1885); Rubner was his successor (1891). This amazing conjunction of microbiology, physiology and biochemistry as the fundamental basis of hygiene must have aroused great hopes. Alas, microbiology, bacteriology, infection and immunity all went one way, physiology and biochemistry another, and each became independent disciplines in the medical schools. Research and teaching in both advanced in a marvelous fashion, the former constantly fertilizing the latter. The expanding and developing foundations of scientific medicine, ever increasing in strength and significance, were becoming more and more imbued with the spirit of inquiry. Physiology set the pace.

In the meantime, what of hygiene? Literally, it was what remained after the departure or desertion of microbiology and physiology! This was true of course only in the hygiene teaching departments of many medical faculties. Actually, outside, giant strides were being taken in the fields of public health and of social and preventive medicine. The excursions of the state into the domain of medicine, from the passage of the English Public Health Act of 1875 and the introduction of health insurance by Bismarck, were becoming more and more frequent and significant. The health and social well being of man was a matter of increasing concern to governments.

The fundamental sciences furnished the means for these repeated advances of enlightened governmental and voluntary agencies directed against disease, poverty and ignorance.

Physics, chemistry and biology in their expansion and development furnished new principles and methods by which physiology, genetics and immunology could be employed in the prevention of disease, the prolongation of life and the mitigation of human suffering. Thus did research and investigation in many fields of preventive medicine contribute most significantly to the triumphant march of science during the past half century.

The development of epidemiology was the work of many hands. In the past hundred years, however, the contributions of two pioneers stand out—the studies of William Budd and of John Snow. They were made in the prebacteriologic era. The great contributions to microbiology of Pasteur, Robert Koch and Theobald Smith (to name but three in a great galaxy) have not lessened the significance of the work of the pioneer English epidemiologists. On the administrative side, real progress has resulted from the accumulation of careful records and painstaking observations carried on for half a century. Chapin and others in the United States deserve special mention. They contributed to a better understanding of sources of infection. Much earlier, in the statistical field, William Farr and Francis Galton in Great Britain prepared the ground for later work in experimental epidemiology and the more prosaic department of public health bookkeeping.

The development of a new field of work, or its more intelligent cultivation, by Richard Cabot in Boston, between 1900 and 1905, was important. It was the creation or new use of an auxiliary to the clinic; namely, medical social service. Its purpose was to assist in gaining a clearer insight into the effects on health of environmental influences. The field of study was extended from the patient to his surroundings, work, play, income, intelligence, education and interests. What factors (which could not be elicited by the history or by clinical examination) contributed to the patient's ill health? In earlier times sisters of mercy, lady almoners or representatives of charity organizations concerned themselves with the care of the needy. Often ill health was a causative factor. Could poverty and ignorance or maladjustment influence physical disease?

Medical social service had definitely, as one of its functions, investigation of causative factors or untoward influences. Social insurance (health, invalidity and old age), chiefly in European countries, has had a phenomenal growth in recent years. The relation of this to preventive medicine is not unimportant.

The study of the early symptoms of disease in special institutions like the James Mackenzie Institute for Clinical Research at St. Andrews is obviously an important avenue of approach—a highway of preventive medicine susceptible of great extension. Mackenzie's vision conceived of something definitely realizable. Appointment of keen young investigators in clinical research at certain centers in England within the past two or three years may here be noted.

One other group of activities may next be briefly considered: With the organization of elementary school health services and university health services there arose a demand for criteria in the effort to assess

physical fitness. What was the range of normality? What were the boundaries of the normal when the health of school children, college students or clients seeking periodic health examinations was being explored? When presumed healthy individuals of any age were being examined for the earliest evidence of deviation from the normal, or being advised as to a way of life, in order to maintain the ideal of "mens sana in corpore sano," whose responsibility was it to educate doctors to discharge such duties? With what scientific facts should they be familiar? What methods of examination should be applied? Whose job was it in the whole group of medical sciences to concentrate a little attention on the study of normal, healthy human beings, in their work, in their play, at different ages, under various economic, social and environmental conditions?

If one is interested in the search for the normal range of many important physiologic functions so that an answer may be given to the question "Is this person in a condition of mental and physical health?" there is certainly even greater need for the formulation of suitable criteria for assessing states of nutrition.

Now research into all these questions has been and is being done at present. In physiology, biochemistry and anatomy there is phenomenal activity. The advances in knowledge of hormones is an illustration of this. When one turns to the clinical side of medicine, equally noticeable progress is manifest. To the advance of preventive medicine perhaps no other discipline has contributed more than pediatrics. In the steady and long continued effort to promote infant and child health, as well as to gain a wider knowledge of healthful states, pediatrics in many university clinics has shown how preventive medicine may be practiced as well as preached. Obstetrics, too, has contributed. The importance of antepartum care is now everywhere recognized. In most obstetric clinics it is taught and practiced, and the maintenance of the health of the prospective mother is really a part of the teaching of midwifery in the best medical schools. General medicine has also in certain specialties, notably tuberculosis and venereal diseases, a fine record of achievement. It is a far cry from the simple clinic of Calmette in Lille, with its attached "infirmières visiteuses" or that of Philip in Edinburgh, to the tuberculosis dispensary of today.

Surgery too (notably in the clinic of Wilkie in Edinburgh) has been exceedingly active on the preventive side, as has ophthalmology, in the development of methods for the prevention of blindness (such as the use of suitable prophylactics to eliminate ophthalmia neonatorum and the aid given to the movement for classes in sight saving).

Psychiatry has taken a leading part in the mental hygiene movement. No field of medicine is more difficult of cultivation, none more important to explore and develop if possible. In any event, psychiatric clinics and special sections in general medical clinics (in conjunction with psychology) are now committed to the task of learning more of the genesis and evolution of psychotic states and of what may be done to prevent their occurrence.

It is abundantly clear that bacteriology and immunology are of prime importance in every further advance on that volume of preventable illness made up of communicable diseases. There bacteriology and preventive medicine may and do effectively collaborate. So much remains to be discovered concerning the etiology of such widespread diseases as influenza (to mention but one of many) that the efforts of bacteriologists is unlikely to lessen opportunities for workers in the field of preventive medicine for many a long day.

EFFECTIVENESS OF TEACHING

In the meantime, what of the teaching of hygiene? Was it fruitful, was it effective, did it intrigue its students whether in elementary schools, colleges or faculties of medicine? Let us be honest. It did not! With a few notable exceptions, university medical schools had, in their teaching departments of hygiene, surely reached the low-water mark of effectiveness when in ten or fifteen didactic lectures some elementary principles of physics or chemistry were employed in demonstrating a few unimportant facts regarding our surroundings, our clothing, our food and drink. That constituted what was rather quaintly described as hygiene and sanitary science. Of course, in many medical schools, some good, some bad and some indifferent, little or no attention was paid to hygiene and sanitary science, or even to preventive medicine, for that matter.

Let there be no misunderstanding. Man's environment is of profound importance. Clear understanding of its dangers and its hazards and inquiry into their nature and how they may be circumvented are no mean fields of human endeavor. Actually it has largely been a triumph for engineering. That field of science employing the methods of biology, mathematics and mechanics has made a great and enduring contribution to human welfare. It has been something real and effective in sanitary science. North America has participated in this triumph to a notable extent. Sedgwick and his school in Boston were among the pioneers.

With the collaboration of biologists in the fields of entomology, parasitology and helminthology, medical scientists and engineers alike have also contributed to some magnificent advances in the conquest of disease. Witness the achievements in malariology and tropical medicine generally! But it is not unfair to say that the inspiration did not derive from the medical teaching of hygiene.

Perhaps the creation of the first important separate department of preventive medicine and hygiene in the Harvard Medical School in 1909 was not entirely unrelated to the activities in the neighboring center of higher learning, the Massachusetts Institute of Technology. There Sedgwick labored. In any event the Harvard development was momentous. Previously in Europe, in the British Isles and in North America there had been conjoint chairs of bacteriology and hygiene, and where such existed public health aspects of bacteriology were often cultivated assiduously. The University of Minnesota was a notable example of this.

A reasonably complete and comprehensive picture of the situation in various parts of the world between 1900 and 1910 can be obtained by reference to medical school calendars and announcements of the period.

It is probably true to say that the German institutes of hygiene (and similar institutes in countries in which university medical faculties were modeled on German lines) were most advanced. They were independent university institutes. They were staffed by persons who devoted themselves to teaching and investigation. There were a number of journals for the publication of the scientific output of the workers in the field.

In few other countries was the situation so promising at that period. Certainly in but few of them in 1900 were there institutes in the German sense.

The situation at the best was seen in those places where bacteriology and hygiene were combined and where the teaching was limited to a consideration of certain aspects of infection and immunity, to the study of communicable diseases and some reference to such environmental topics as bacteriologic and chemical methods employed in water purification and sewage treatment. If there was affiliation between such departments and health organizations, the situation was not without promise. It obtained in a number of institutions in North America. In Michigan in 1910, under the late Victor C. Vaughan, there was perhaps the best department on the German model in North America.

In the British Isles and in many British communities the subject was combined for purposes of university teaching with medical jurisprudence or legal medicine. There may not have been much logic in such an arrangement, but it often had the merit of affording a brilliant expositor with a first-rate opportunity of displaying his forensic talents or fascinating his auditors with the details of a local murder mystery. It was enjoyable but had not much to do with preventive medicine and hygiene.

Almost nowhere at that time was the instruction other than didactic. Examinations in hygiene, even where they were required, presented few terrors for the indifferent and none for the diligent student. Almost everywhere, outside German universities (and those like them, in adjacent European countries), the students held hygiene in low esteem.

Those who constitute the great bulk of medical practitioners today, who are 50 years of age or more, received no teaching whatever in hygiene worthy of serious consideration or, as medical students, did not hear of the subject at all. There is little wonder, then, that it is a "minor" subject in the opinion of mature physicians generally and that they are not greatly moved by the agitation or clamor for more instruction in preventive medicine.

This has naturally led to the conclusion on the part of not a few that preventive medicine, hygiene, public health, social medicine and the like need not be developed in independent departments or chairs but should be regarded simply as part of the subject matter of anatomy, biochemistry, physiology, bacteriology and the clinical branches. The arguments for and against this point of view are essentially those used by persons who do not believe in separate chairs or clinics or departments of subjects like pediatrics or psychiatry. They need not be elaborated. They are largely academic and lacking in reality. There are also those who, while admitting that it is desirable to teach preventive medicine to medical students, insist that there is no time for such instruction in an already overcrowded curriculum. The answer to that objection is that suitable rearrangement, rather than any addition to the program of medical studies, could and should be made. In a number of the best schools it has been done and is quite possible and practicable anywhere.

The proponents of the view that preventive and social medicine is most likely to be developed vigorously and satisfactorily, if recognized as a distinct discipline in the medical school, are those who believe that preventive medicine, in many of its aspects, is a responsibility of practically every department of the medical school. They adhere, however, to the view that this business will be accomplished most thoroughly if some portions of the field (left largely uncultivated by other departments) are the responsibility of some one department. This may be called hygiene, public health, preventive medicine or social medicine. Preventive and social medicine is perhaps the least objectionable. But designations are less important than the job and the way in which it is done.

SUBJECTS TO BE TAUGHT

The precise activities of departments of preventive and social medicine will naturally vary in different universities. But in broad outline they may be sketched. Certain aspects of applied physiology or physiologic hygiene may be developed and taught. An extension of human physiology may be carried on for the study of normal ranges, so that the bases of methods of health examinations and health teaching may be made more secure. Relationship with school health services or, better still, partnership with the university health service should be established. The opportunities for investigation therein would be many and valuable. Certainly undergraduate medical teaching should be organized and perhaps initiated in this ideal setting. Students would carry on their studies of "normals" in an atmosphere in which diagnosis and treatment of the sick are not a duty or a necessity.

Combined with the study of function should be that of structure. Careful anthropometric measurements should be taken and recorded. Inquiries should be instituted into human biology and eugenics. Naturally, colleagues in physiology might collaborate in planning the exact scope of such inquiries and possibly would agree to exercise some critical supervision. That anthropologists, too, are not entirely disinterested may be inferred from the whimsical and provocative article by Hooton, "An Anthropologist Looks at Medicine."[2] Instruction in this section should be didactic and practical. Logically also the influences of important and measurable environmental influences could be correlated with this.

Unless students have already been introduced to the elements of statistical methods, it should forthwith be done. In a few brief exercises this essential equipment may be acquired. Digression here may be warranted in reference to this matter of statistical teaching. It need be neither prolonged nor profound, but it should be adequate and preferably included in preclinical instruction or incorporated in biology or physiology. The physician of tomorrow should be trained to think quantitatively. He need have no special mathematical aptitude to comprehend elementary statistical principles. There are now available clear and concise introductions to the subject. An admirable example has recently appeared.[3]

The positive approach to the teaching of preventive medicine through applied physiology or an extension thereof is most logical. Observations on growth and dietary studies (of healthy persons) are other suitable topics for class work.

The introduction, then, is based on the concept that health maintenance comes before disease prevention and that other aspects of the subject should be introduced to the student only when he has had opportunity to comprehend and apply the preventive idea.

2. Hooton, E. A.: Science **83**: 271 (March 20) 1936.
3. Hill, A. B.: Principles of Medical Statistics, London, The Lancet, Inc., 1937.

In a four year medical course the teaching in preventive medicine may be included in the third year program. After the introduction outlined, or coincident therewith, a course of didactic lectures, from thirty to thirty-five in number, may be given. They provide an opportunity for the elucidation of the principles of epidemiology, the hygienes, special public health problems of the country, health services in industry, public health engineering, public health laws, organization and administration. This teaching should be specifically designed for future medical practitioners and not for those who intend to specialize in public health. Ideally, the didactic instruction should be correlated with the practical exercises and field work. But the lecture course may precede other teaching by a few months without serious inconvenience arising.

Certain principles and procedures should be incorporated in any such practical teaching. The nature of specific prevention of communicable disease can be reviewed and various methods of determining susceptibility practiced. Also vaccination against smallpox, inoculation against diphtheria and the like should be carried out by each student and a careful record made of daily observations, from ten to fourteen days in vaccinia, and at other suitable intervals in the case of inoculation against diphtheria. The ordinary public health diagnostic laboratory procedures of assistance in the recognition, treatment and prevention of communicable diseases should be reviewed and, better still, carried out in a series of five or six half-day laboratory periods.

The clinical teaching of communicable diseases, if correlated or integrated with this, may very well benefit not only the student but also the instructors engaged in such a conjoint enterprise. It should, however, be systematic, carefully planned and regularly carried out. It is probably unwise to leave it to the chance occurrence of suitable clinical cases in the medical or pediatric services. In many communities with active health departments such cases may be few and far between.

Other practical exercises of interest and importance to future physicians may be easily organized. One or two may be centered around physical and chemical principles on which rest methods of water purification. Perhaps a concise chemical and bacteriologic examination might be made of samples of raw and of pasteurized milk. Then a laboratory period may be devoted to the observations of the methods of producing biologic products utilized in the prevention and treatment of disease and in the Schick, Dick and Mantoux tests. Such an exercise affords an opportunity of emphasizing biologic standards, national and international, and also of indicating which methods of specific serum or vaccine prophylaxis or therapy have an adequate scientific foundation.

A period should certainly be devoted to vital statistics in public health and to a review of those record forms with which doctors should be familiar, such as birth and death certificates. He should know that there is an international classification of causes of death and be in possession of a copy of the booklet in which they are listed and arranged.

From ten to fifteen half days will probably suffice for the exercises thus far proposed. There should then be arranged a series of visits, excursions and field trips to permit the student to learn something of the work of the public health and social agencies. Cooperation with or, better still, assistance (possibly by part time staff appointments) from health departments is essential. It is the good of the health department, the students and the community that the health department serves. By and large, teaching hospitals possess opportunities (they may not of course be exploited) which nonteaching hospitals do not. Health departments, school health services, special public health clinics and dental services serve the "well population," as hospitals and dispensaries do persons who are ill. All are community resources. They are probably the better for it if their facilities are used for teaching and research. They are frequently so utilized for training nurses and social workers. Why not medical students? Always the principle is kept in mind that it is general medical practitioners who are being prepared and equipped.

Generally speaking, the public health organization will be that of the state or province or of a municipality. Not infrequently this practice field is a health district or unit or possibly a health center and the area which it serves.

These arrangements should enable medical students to observe essential activities such as the conduct of school health services and the special classes auxiliary thereto; public health clinics; public health nursing activities; the routine of infant and preschool child health centers; laboratory, statistical and epidemiologic services; the general sanitation machinery, and the supervision and control of foods, including milk and milk products. It is good if students are afforded opportunities of seeing all steps in the production of safe, clean, pasteurized milk from producer to distributor. Unclean, unsafe milk is a potent source of preventable disease. Medical students should be familiar with the measures that have been instituted to safeguard the community from such a hazard. Health service in industry should also be observed.

Students should have a knowledge of social conditions under which poverty and ill health breed and flourish. This they may acquire by home visits with public health nurses or with social workers.

These observational visits should be carefully planned and suitably supervised, and every student should record his observations. Such records should certainly be read and appraised by an instructor and may appropriately be discussed in seminars or group discussions.

Observational visits can be made very interesting and instructive, but only if the medical school is in a center where there are suitable public health and social organizations. Also, they are possible only if good team-work and cordial relations exist between those working in preventive medicine in the medical schools and those whose public health and social responsibilities are elsewhere. This part of the plan of the teaching may occupy from fifteen to twenty half days. Thus about one month is required, altogether, for practical preventive and social medicine in addition to the thirty or thirty-five hours for theoretical instruction.

Is it unreasonable? Does it give the medical student something he should have and is not given in other departments? What are the objections to it? Can a medical school really meet the present-day requirements of its student body unless there is instruction in preventive and social medicine? Should medical students be as well trained in preventive medicine as are public health nurses?

At this juncture, it may fairly be asked, What resources and facilities should a university medical school possess to enable it to provide entirely adequate

preparation in preventive and social medicine, public health and hygiene? These may be set out as in the accompanying table.

Earlier it was emphasized that the ideal setting for the initiation of teaching preventive medicine is one in which health conservation rather than treatment of disease is the major preoccupation of the student and the instructor; hence the supreme importance of an adequate health service and access to it for purposes of teaching medical students. Equally essential is suitable staffing of the service. Unless it is also the department of preventive medicine of the medical school, it should most certainly have close and effective relationship (through organization of staff) with that department as well as with the departments of physiology and internal medicine.

University Institutes, Departments or Clinics

A. Medicine (tuberculosis; venereal diseases; social service)
B. Surgery (social service; industrial hygiene and industrial clinic)
   1. Ophthalmology (sight saving)
   2. Orthopedics (follow-up service for anterior poliomyelitis convalescents, etc.)
C. Obstetrics (antepartum service; postpartum follow-up; instruction respecting contraception)
D. Pediatrics (infant and child hygiene; milk depot; child guidance clinic; nursery school)
E. Psychiatry (mental hygiene, including child guidance clinics; psychiatric social service; psychiatric service in the schools; juvenile court; auxiliary classes, vocational schools)
F. Preventive and Social Medicine, Public Health and Hygiene
   1. Access to health departments for school health services; special classes; general services; laboratory studies; epidemiologic studies; sanitation; food control; public health nursing; social agencies
   2. Facilities for bacteriology and immunology, statistics, epidemiology
   3. Access to Students' Health Service
G. Physiology or Physiologic Hygiene including Biochemistry (nutrition; personal hygiene; industrial hygiene; introduction to statistical methods, ventilation, illumination, etc.)
H. Bacteriology (systematic teaching and research including the study of viruses, immunochemistry and chemotherapy)
I. Applied or Human Biology (perhaps included in preventive medicine or anatomy) (anthropometry; eugenics; studies in human heredity; statistical methods. With Medicine: studies of "constitution")
J. Interdepartmental facilities for combined activities, such as:
   1. Clinical conferences or clinical lectures; medicosociological; communicable disease
   2. Domiciliary visits: medical social service or public health nursing, or district visiting nurse service
   3. Periodic health examinations: Student Health Service

It is of some interest to recall the observations of a distinguished student of medical education relating to instruction in preventive medicine.[4] In a discussion of the laboratory sciences there is a section devoted to pathology and bacteriology; in a concluding paragraph Mr. Flexner wrote:

> With the rapid scientific advance in bacteriology which I have above barely outlined, the outlook and spirit of the medical school have already been perceptibly modified; prevention —both socially and individually viewed—is coming to figure more largely in the student's training and in the practitioner's activities. Nor will the challenge of the humanitarian bearing be without its effect even upon the imagination of the investigator. Faculties of public health have, to be sure, also been established; but this does not mean that prevention becomes *their* business, while cure remains the concern of the physician. On the contrary, within the medical faculty itself it has become increasingly impracticable to study the diagnosis and cure of disease without consideration of its eradication and prevention.

4. Flexner, Abraham: Medical Education: A Comparative Study, New York, Macmillan Company, 1925.

That conclusion is even more abundantly justified today as far as it has reference to the teaching of the preventive aspects of pediatrics, obstetrics, psychiatry, surgery and certain fields of medicine.

It will of course be realized that regardless of facilities and material resources, unless and until preventive (including social) medicine and public health is recognized as an essential discipline in the medical school, progress will be unsatisfactory.

This recognition will probably be forthcoming in various forms and at different times in different countries and universities, depending on their needs, their interest and their national genius. It scarcely need be stated that provision for research and investigation is as essential in this as in any other department of the medical school and should be made available. Field as well as laboratory investigations will probably be a feature of university departments of preventive medicine and public health.

Comparisons of situations existing in universities in different countries at the present time are possible only if suitable criteria are available by which to measure or assess efforts that are being made to teach preventive medicine.

These criteria may be considered in terms of personnel, scientific productivity, teaching ability and financial or budgetary resources. Brief reflection will render it obvious that in a study of the situation in many countries with widely different traditions in medical education it is almost impossible, or at any rate unprofitable, to pursue such comparisons at any length or in any detail.

It is especially true as regards the content of courses of instruction in hygiene and public health that it is likely to be influenced by the character and extent of public health and social welfare organization and activities in any particular country. That is not true to any considerable extent of other subjects in the medical curriculum.

Proceeding to the more specific question of hygiene teaching, Mr. Flexner wrote:

> Hygiene varies enormously. (I speak here of hygiene as a topic in the medical curriculum, not of instruction in hygiene designed for persons entering the health service. Hence the text takes no account of such courses as lead to the "diploma in public health" [D. P. H.] in Great Britain.) In Germany, England and Sweden, didactic and illustrated lectures are given; in Germany, and in Sweden at Stockholm and Uppsala, institutes of hygiene exist in the medical faculty; in France, the subject is largely absorbed by bacteriology; in the United States, it figures in the main indirectly—in bacteriology and internal medicine and, more important still, in a change of view, gradually perceptible, which tends to permeate the entire medical school with the thought of preventive medicine. Chairs of hygiene have, however, been established at Yale, Harvard, Columbia, Cornell and Vanderbilt, and schools of public health, on a par with their respective schools of medicine, are being developed at Pennsylvania, Harvard and Johns Hopkins.

It is a reasonable assumption that even informed opinion fifteen years ago did not conceive of preventive and social medicine and public health as elements in the medical curriculum in just the form in which they are understood today. Neither the tasks of this discipline nor its needs were wholly realized.

Effect of Discipline on Progress of Medicine.—It has been well said that a teacher whose disciples do not go beyond him has failed. . . . It is true that to smother a student beneath the weight of authority is to hamper the progress of medicine.—Langdon-Brown, Walter: The Dead Hand in Medical Science, *Lancet* **1**:277 (Jan. 29) 1938.

REPORT OF THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

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During the past year the Council on Medical Education and Hospitals has been engaged in a follow-up campaign in connection with the national survey recently made of all the medical schools of the country. We have endeavored to be helpful in the correction of weaknesses in certain schools but have reached the stage at which, if it is found impossible for an institution to maintain a strong and effective medical school, we shall soon give public announcement to the removal of all such schools from our approved lists. We have recognized the effect of the continued depression on the financial operation of institutions engaged in medical teaching. The power of the Council, however, largely depends on its study of facts and the publicity given to them for the protection of future medical students and eventually of the profession and of the public. The Council's commentary on the medical education of today will soon be made available.

PREMEDICAL REQUIREMENTS

At the very outset of the Council's activities, and a little later in the Carnegie report, the greatest emphasis was laid on the necessity for a definite educational requirement for admission to medical schools, in order that those who were accepted as medical students might have a sufficient foundation to be able to pursue with advantage the various parts of the medical curriculum.

Our most recent survey has again demonstrated that the most important factor in determining what comes out of a medical school is what goes into it: that is, the educational and personal qualifications of those who are accepted as students. Once again, the utmost emphasis must be placed on standards for admission and the process of selection.

It is for this reason that the Council recommends that the minimum requirement be raised from two to three years of college. Already approximately 90 per cent of those admitted have reached this level; but a few schools with lax admission policies still accept candidates with barely sixty hours and barely passing grades.

For raising the requirement, three reasons may be urged: first, to permit a more thorough grounding in science, especially in chemistry, which is becoming every day more important in medicine; second, to allow the prospective medical student more opportunity to become acquainted with non-science subjects which are intimately related to his professional activities, such as psychology, sociology and economics; and, third, to insure that students from junior colleges shall have spent at least one year in a university atmosphere before entering the professional school.

The ultimate selection of medical students rests, however, more on a qualitative than on a quantitative basis. The student who has completed four years in college with no grade higher than a C is undoubtedly a poorer risk than the student who has to his credit two years of straight A. The better schools have all recognized this fact in their admission policy, but there are still too many, especially state institutions, which feel bound to accept every candidate who has the requisite number of "hours" regardless of performance.

It is for this reason that the Council recommends that each school formulate for itself and effectively administer an admissions policy based on an understanding and acceptance of the fundamental principle that not every student who can attain a passing grade is a good enough risk to be entitled to admission to the medical school. Granted a few exceptions, the man who has never made better than C in college will probably never reach an average of C in medical school. The medical profession gains very little by having members added to it who are not capable of doing good work in at least several departments of the medical school.

Dr. Rypins, three years ago, presented to the Blue Print Committee a paper in which he indicated that there are probably not more than 4,500 really well qualified candidates available each year. At that time our schools were admitting annually about 6,500. If Dr. Rypins is anywhere near right, we are still accepting too many applicants each year. Any improvement must come through better selection based, among other things, on higher standards of achievement.

INTERNSHIPS

The period of apprenticeship commonly designated internship is now, more widely than ever before, recognized as a continuation of the preparation for the practice of medicine. Those hospitals which are controlled by universities or medical schools readily admit and reasonably discharge their educational obligations. Others somewhat slowly have come to accept responsibility for the instruction of house officers. At present there is a dangerous tendency, especially in New York, to demand that interns be paid substantial salaries in municipal or county hospitals. Should this custom be established, there would surely ensue a deterioration of the educational value of such internships. Public officials, having paid the intern for his services, could hardly be expected to feel themselves under any obligation to furnish him also free instruction.

In many ways the intern year is the best educational year that the young doctor ever enjoys. Because of certain difficulties there has been a tendency on the part of the medical schools to throw off onto the hospital the full educational responsibility of the intern year. This is a fundamental mistake. By requiring the intern year and making it a part of the medical curriculum there is hope that it can be better organized and better controlled as an educational enterprise. It is, of course, annoying to members of the medical faculty to have to secure internships for their students, to guide to some extent their choices, and to have a feeling of responsibility for training which may be distant from the medical school. But from the standpoint of the public and of the profession it is vital that the medical school faculties accept their very large responsibility in working with the hospitals to make the intern year—in fact, the intern years—effective and significant.

SPECIAL BOARDS

The medical profession and the public have demanded some reliable means of identifying the qualified specialist. All too many "self-anointed" specialists have inflicted physical suffering and financial loss on the people. About five years ago it became evident that unless some other solution was shortly found some of the states would set up machinery, analogous to the medical examining boards, to pass

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on the qualifications of specialists. The American Medical Association in 1933 undertook to sponsor such voluntary examining boards in the specialties as should conform to standards to be formulated by the Council, in the belief that this was a better answer to the problem than state action. At the time, the four or five existing boards were reluctant to accept supervision by the Council. In the intervening years there has been a growing understanding of the role of the Council on Medical Education and Hospitals and reasonably satisfactory relationships have now been established with the respective examining boards. While it will take some time to develop a uniform policy, with the help of the Council and these examining boards substantial progress is being made.

Through the power of publicity possessed by the American Medical Association, the Council can and should exercise a wholesome influence with these boards. I feel that eventually the boards will welcome the support of our organization. The greatest danger, both to the public and to the profession, lies in the tendency of some of the boards to conceive of their functions in terms of a medieval guild, each rigidly to restrict the activities of its own members and to seek first to promote the welfare, financial and professional, of its own group. The short-sightedness of such a policy is, of course, apparent. Unless these boards are broadminded enough to place the public interest ahead of their own immediate apparent profit, they will serve no useful purpose and must soon be superseded by some other agency.

GRADUATE MEDICAL EDUCATION

Graduate medical education has been the concern of the Council since its inception. Recent surveys, such as that made for the state of Iowa, indicate that a very considerable amount of educational opportunity is available to physicians in a number of our states. The Council has endeavored to stimulate graduate instruction. As in the undergraduate field, its function includes the formulation of standards, the application of such standards to individual institutions and their appraisal or classification. Steadily graduate medical instruction has become of great importance with the development of medicine. Recently there has been organized a Commission on Graduate Medical Education, sponsored by the Advisory Board of the Medical Specialties, to review the general background of graduate instruction and to develop conceptions of just what is desirable to do in America. The Council will, of course, continue its regular functions in this field, carry on its comprehensive study of graduate medical instruction and give assistance to the commission in its special work.

CONCLUSION

In general the Council is proud of the splendid record which the leading American medical schools are making in every part of medical education, including research. Some twenty schools, though, are weaker than they should be. There are sufficient resources of men and money to build them up in most parts of the country; but there are a few institutions that should abandon the expensive field of the education of the doctor. The university or school assuming the responsibility of training the physician should realize that every effort is both justified and required to assure high quality of training for carefully selected men and women with good brains, good hearts, good will and good character.

OPPORTUNITIES FOR THE TRAINING OF FUTURE INTERNISTS

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NEW ORLEANS

John Morgan, founder of the University of Pennsylvania School of Medicine in 1765, had probably one of the wisest concepts of medical education that any man has ever had in this country. Certainly his ideas were many, many years in advance of his contemporaries and those educators who followed after him. In his dissertation on the institution of medical schools in America he pointed out the necessity of the medical neophyte having a thorough preliminary education both in literature and in the sciences. Unfortunately the mental perturbation that resulted from his dismissal from the Continental Army as the medical director turned aside his thoughts on medical education and the principles of the training of physicians to other things which he considered more important, certainly more important to him but not of great importance to the future of medical education. Morgan never engaged in teaching after he entered the army and, although his position in the young medical school was held open for him for several years, he never went back to it.

Morgan was primarily interested in the teaching of undergraduate medical students, but he was a far-seeing thinker likewise interested in specializing. He was the first practitioner of medicine in this country to limit his practice to one branch of medicine, and although he was much ridiculed for this innovation he made a success of it. As Abraham Flexner says, "he [Morgan] knew that an internist, a surgeon and an apothecary have different tasks and require different training." Morgan's ideas in training of the medical student put into effect in 1765 were promptly dropped as a prerequisite for admission to enter the undergraduate medical school, and it was not until Johns Hopkins University School of Medicine commenced to function, about 1890, more than 100 years later, that his principles were made effective. It was not until about this same time that medical men began to specialize on a broad scale, and it has only been in the last twenty-five years that specializing has become widely accepted.

With the increase in the number of men going into special fields of medicine it became necessary to develop a method whereby a man could be judged as to whether his training was adequate and whether his knowledge of a specialty was sufficient for him to be above the educational level of his fellow practitioners. In order to set up an agency or agencies whereby the qualifications of a man to practice his specialty could be judged, the American Board of Ophthalmology many years ago (1916) instituted examinations to test the qualifications of the prospective specialist. Quite a few years later other boards were established, and now nearly every specialty has a board whereby men may be issued a certificate provided they have had ample amount of preliminary training, provided they have shown qualification by examination by their medical peers and provided their knowledge of the subject is sufficient to rate them as skilled in making special studies and special diagnoses or in performing complicated operations. These boards are only quasiofficial. They work with

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the American Medical Association but they have on them also representatives of special medical societies. They have been formed as a sincere effort to give to the public information showing that a man is well qualified to practice a specialty. No longer is it possible or will it be possible for a physician to label himself a specialist in some branch of medicine and be generally recognized as such merely on his expressed opinion of his own abilities. Self-appointed, anointed and announced specialists will cease to exist if these boards are successful in limiting the practice of a specialty to those who are qualified.

The boards for the specialties have certain requirements that must be carried out before the candidate for certification is accepted. The requirements of the different boards for preliminary training vary considerably, from one that demands only from six months to a year of special training to one of the newer ones that consider a minimum of five years' training desirable and necessary before a candidate should even be considered for recognition. In many of the specialties there are ample opportunities for a young man desiring to equip himself to become a master in a certain branch of medicine; in others his opportunities are few and far between. Most of the specialties are well defined and sharply segregated divisions of medicine, but in internal medicine there is no such boundary, no such clear-cut boundary as demarks the specialist in such a branch as ophthalmology. Parenthetically, it should be noted that every doctor feels that he knows internal medicine and is qualified to practice internal medicine; at least he feels that way for some years after he has graduated and until he has devoted a fair part of his life to doing only one type of professional work. The consequence is that the otologist, the ophthalmologist, the obstetrician and the gynecologist all have special fields open to them for their development. There are even hospitals scattered throughout the country where patients with only one type of disease are treated, as for example the Wills Eye Hospital in Philadelphia, where only patients suffering from ocular disorders are admitted. There are very few institutions devoted solely to internal medicine, and very scanty are the number of residencies available in the field of internal medicine. This, of course, is largely relative. Proportionately there should be many more internists than ophthalmologists, gynecologists or obstetricians. Almost every person sometime or another has an internal disease and consults an internist, but males do not have babies nor do they have the female disorders that the gynecologist treats. Most people go through life without consulting an otologist. Relatively few are the number who have dermatologic diseases or disorders, and most of us are not crazy. Consequently there should be a large number of places and institutions where the young physician who wants to become an internist should have the opportunity of preparing himself for his future medical life.

The possibilities for instruction include (1) university fellowship, (2) clinic fellowship, (3) hospital residency, (4) preceptorship and (5) formal graduate training.

UNIVERSITY FELLOWSHIP

Probably the most satisfactory method for the future internist acquiring the proper training may be work in a medical school. After a man has completed an internship there are many departments of medicine that provide for a limited number of recent graduates who are titled fellows or assistants in medicine, depending on the particular university. These men receive a small salary, sufficient in itself at least to defray the cost of living with very little left over for outside pleasures or avocations. The university may permit the fellow to qualify and ultimately obtain a degree of Master of Science or even a Doctor of Philosophy. They spend from two to five years in the department of medicine and then leave in many instances to practice in cities and towns where there is no university medical school.

During the time that the man is holding his assistantship on a full time basis (I am speaking now from experience at Tulane), he has the opportunity of engaging in teaching, of working in wards and clinics and of devoting a goodly part of his time to special study, to investigative work or to follow out any particular bent that he may have in internal medicine. The opportunity is afforded of seeing a very considerable number of patients and to study them under the tutelage of men more mature in medicine and of greater clinical experience than has the young man, who works in the wards, in the outpatient clinics and in the laboratories. In our university clinic in the Hutchinson Memorial, patients are studied with extreme punctiliousness and in the most detailed fashion. Very complete long histories are taken and every diagnostic test is available for the study of the patient. In the Charity Hospital, on account of its enormous size, the younger man learns, from seeing a great number of cases, to recognize important ones and segregate them for more detailed observation. Roughly, about half a man's time is spent in the wards and clinics, about two hours a week is required of him for class work and the rest of the time he is more or less on his own. During his free time the men study electrocardiography and the interpretation of tracings, they interpret roentgenograms under the roentgenologist, they attend autopsies and they make special studies in any one of a variety of conditions. We feel that when a man has had this experience for three or more years he is a well qualified internist. Some of the men who have been with us have remained in the department, but the majority of them have gone out and practiced on their own responsibility. That their training has been good and that they have obtained a fairly complete knowledge of internal medicine are evidenced by their success in the practice of medicine. Some of these men have limited their work solely to consultation and office practice and have done well by themselves financially and have still maintained their interest in scientific medicine.

Unfortunately there are only a limited number of such positions open in the various medical schools of the country. Certainly there are not enough men to be trained in internal medicine by this method to meet the needs of the future.

CLINIC FELLOWSHIPS

Under the heading of clinic fellowships I have incorporated training which is given at some of the larger clinics in this country such as at Rochester and at Cleveland and which is given in many smaller clinic groups throughout the country.

Of course the most ideal method is that followed at the Mayo Clinic, where the teaching is really a function of the University of Minnesota Graduate School. The young man goes into the clinic and is required to spend some months in the fundamental sciences. He gets detailed training in the subdivisions of the clinic and finally is assigned to a more or less settled position for

the particular study of some special section of the anatomy, whether it is the stomach or the heart, the esophagus or the lungs. This is an ideal method of training, but again only a limited number of men who want to get this training can be taken care of. Facilities are not sufficient and expense is prohibitive.

More in detail, as far as the Mayo Foundation is concerned, it may be said that fellowships in the Mayo Foundation are sought for with avidity; consequently, it is possible to make careful choice of the recipients of the fellowships. The majority of the fellows have had two years of internship, although only one is definitely required. The appointments are made for a year and are renewed annually for three years. The prospective candidate for the master's degree spends two thirds of his time in his major field and at least one sixth in the minor. He may select work in any one of the fifteen diagnostic sections of the clinic or of the eighteen hospital services. Four services of six months each is the requirement for recommendation to advanced degree. Succeeding this period he may be appointed to a first assistantship in a clinic for one year. To fellows who have not had pathologic experience there is open a service of six months in the section on pathologic anatomy. Clinical seminars are conducted, pathologic conferences are held and other methods of instruction are carried on through the three year period. In addition to this training the young man is expected to present a thesis based largely on investigative work. He is kept in constant contact with the fundamental fields of physiology, bacteriology, biochemistry and biophysics during the entire period of his stay at Rochester and is expected to have at least six months in one of these basic subjects. Before the man is granted the degree of Master of Science he must have completed the three years work satisfactorily, presented a thesis and stand written and oral examinations. A fellow who has completed three years at the Mayo Foundation has obtained, as far as I know, the most complete formal training in graduate work available in this country.

In many clinics that I have observed throughout the country it is the custom to have one or two recent graduates associated with the clinic on a small salary basis for a limited period and partake of the activities of the clinic only in certain departments. Thus a man would be assigned solely to working with patients who have those diseases which are called internal diseases.

HOSPITAL RESIDENCY

Residencies in medicine are open to a limited number of men. The residency in most hospitals is not of sufficient duration to enable a man to get the preliminary training required by the American Board of Internal Medicine. On the other hand, there are a goodly number of hospitals, more particularly university hospitals, where the resident may move up each year in rank until he has obtained a full residency in one or another of the departments of that institution. Recently in the Charity Hospital at New Orleans residents have been appointed to hold their positions for three years. During the first year in medicine the position is one of subordinacy, the second year of augmented duties, until in the last year the resident is the head of certain divisions of the hospital, subject to the help and advice of members of the visiting staff but, being on duty all the time, the responsibilities are his in great part during the time that the visiting staff is not at the institution.

The great difficulty about hospital residencies and more particularly those that are not connected with teaching institutions is that the residents do not have enough supervision. After a man has been in the institution for a year or more he begins to feel that he knows a great deal more than he probably does and is rather loath to call on his seniors for advice. The senior members of the visiting staff, on the other hand, feel that they have been relieved of routine duties and often have a marked tendency to neglect their hospital work and to let most of it fall on the shoulders of the younger man who is in the institution twenty-four hours a day. The medical neophyte, unless he does have good supervision, may fall into bad habits and may learn faulty methods. Often, too, he is given too much administrative work and becomes an administrator rather than a student of disease.

It seems that the most likely place to extend facilities for the training of future internists is through hospital residencies, inadequate and insufficient as many of these may be. Any hospitals with fifty or seventy-five beds devoted to medicine would be very much better off if they could have a keen, intelligent, studious younger man stay for three years as a hospital resident, supervising the work of the interns and studying the patients in detail. A very much larger number of such positions could be made available in various hospitals than now exists. At the present time there is listed in the bulletin Hospitals Approved for Residencies in Specialties, published by the Council on Medical Education and Hospitals of the American Medical Association, a total of 212 residencies in internal medicine. This does not mean that there are that number of openings each year. Many residents stay in the hospital two, three or even more years. Furthermore, while most hospitals have only one or, at the most, two residents in medicine, teaching hospitals of a size comparable to those institutions having one or two residents will have from three to nine residents in medicine. It is obvious that the last group are to a considerable degree, rather than residents, teaching fellows whose administrative duties are minimal and who bear part of the teaching responsibilities as well as engaging in investigative work in the clinics and laboratories of the teaching institution. Unfortunately in some teaching institutions the resident is given a great deal of administrative detail to attend to; consequently, because such work must be done, his special studies and investigative work will suffer.

PRECEPTORSHIP

Medical training in the early life of this country was largely obtained through very limited university or medical school instruction and extensive teaching by preceptors. A student at Tulane in 1851 spent approximately four months a year from 8:30 a. m. to 5:30 p. m. listening to lectures and seeing operations. The intervening eight months was spent in the offices of practitioners of medicine doing jobs which varied from making up pills and lotions to dressing leg ulcers and bandaging fractures. A Tulane graduate of that time, in addition to his two years of formal training, had to have a preparatory year in which he worked in the doctor's office. Eight months was spent then in medical school instruction and twenty-eight months under the wing of a preceptor. Preceptorships in medicine have gradually disappeared, although, as I have said, at one time they were the pillar and prop of medical education. However, although a preceptor is no longer dignified by

this title, nevertheless in fact, if not in name, there are a great many preceptors in this country. Young men enter the service of older doctors to become office, hospital and general practice assistants to these men well advanced in their specialty and often well advanced in years. These men are able to impart a considerable amount of information by precept and example to their young assistants. A man preparing to be an internist could very well associate himself with some of the better well qualified internists, work for him for from three to five years on a small salary and learn enough to qualify himself to be called an internist. If the preceptor is the right type of man he will guide his apprentice in his reading and his study of cases and in planning for him special work. If he is not the right type of man a great deal depends on the younger man himself and his ability to teach himself.

If a considerable number of older men were to take the younger men under their wing the possibilities for training of younger men in a specialty and more particularly in the one in which we are interested in this discussion, namely internal medicine, are boundless. The plan is advantageous for both the teacher and his associate. The younger man can relieve the older one of a great many routine jobs that are time consuming but necessary. Certainly the young man can save the older man enough time so that the latter may devote a greater amount of time to his patients and to advising the younger man in return for relief from routine duties, and at a small salary.

It is my belief that a union such as this would be of invaluable assistance and help to the man who needs training, as well as a very real relief to the older man. Certainly there have been many hundreds of men who have worked under masters in medicine, such as Billings, Thayer, Cabot and Pratt, who have learned from their masters and who have acquired deep knowledge from and through them.

FORMAL GRADUATE TRAINING

The last method of obtaining a knowledge of internal medicine is by the recent medical graduate, after completing an internship, matriculating and entering one of the schools of graduate medicine. Here he may take courses of only a few months duration or he may take two or three years of graduate training. The great objection in my mind to this type of education lies in the fact that there is too much formal teaching. It seems to me that when a medical man has obtained his degree he should be put to a certain extent on his own initiative and should be permitted to develop himself under proper tutelage. Regular hours of instruction on printed schedules are likely to smother the fire of genius of a man who should have the responsibilities in conjunction with the care of the patient. There is also too great a tendency for professors to lecture at the student and to look on him not so much as a near equal but as a decided subordinate. Furthermore, in all the plans that I have sketched provision is made for the care of some of the expenses, if not all, of the young man. In the graduate school with formal programs, not only must he pay a healthy tuition fee but he must also support himself on borrowed, saved or inherited money. A young man may come out of the medical school with his purse empty, but if he is willing to undergo some sacrifices for a few years he can at least live not in luxury, it is true, but in comfort. Therefore the first four methods of training are open to the young man who has little money. The becoming of a specialist will not be dependent on being an aristocrat of wealth but will be open not to the man exceptionally endowed with financial resources but to the average man. To spend some years in graduate schools a man must have a bulwark of money to carry himself along during his training. He is subsidized by these other methods of obtaining training, in some instances by money entirely, in others by money and in kind.

CONCLUSION

There are various methods whereby a candidate for certification in internal medicine may receive his preliminary training. Such opportunities as are available seem to be too limited in number to train the prospective future specialists in internal medicine.

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CONTINUING PROFESSIONAL EDUCATION

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There is no sphere of interest more intriguing to one concerned with education than that great no man's land which begins on graduation from college and the professional school. Undergraduate training in any field gradually develops in practice into a more or less acceptable working knowledge, but if a satisfactory quality is to be maintained the practitioner must have access from time to time to the newer standardized methods and practices. I believe that a great advance has been made in this particular phase of education as it applies to medicine in agreeing that neither the science nor the art of medical practice can be fully achieved in the undergraduate program of study and that continuing education must be provided in some way.

A decade ago the Council on Medical Education and Hospitals stated that postgraduate teaching was the outstanding medical problem of the day. At the last annual meeting of the American Medical Association, the Council authorized a commission to make a study of all postgraduate activities and needs. At the same meeting, representatives of about half of the states of the Union met informally to discuss postgraduate education and effected a permanent organization—the Associated Postgraduate Committee. A chairman, a secretary and three regional chairmen were elected and a request for a national study of the problem was made to the American Medical Association. Meanwhile, the committee decided to go forward with an exchange of experiences and further study.

Since there seems to be general agreement that a definite need for continuing education does exist, I shall not engage in affirmative argument. Nor shall I discuss the contribution that a well planned postgraduate program may make in the solution of the pressing problem of better and more equitably distributed medical care. I shall occupy the period allotted to me with an accounting of the postgraduate program undertaken in Michigan.

As the terms postgraduate and graduate are often used synonymously, may I explain that by the term postgraduate I refer to a program of teaching designed

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to maintain the practitioner at a suitable standard of professional fitness. By graduate is meant those longer courses of study designed to prepare for teaching, research or practice of a specialty. However, the postgraduate program, while not designed to train specialists, does contemplate the necessary educational opportunities to maintain the specialist as well as the practitioner at a desirable level of professional efficiency.

Almost twenty years ago, the Michigan State Medical Society, concerned with the ever widening gap between medical knowledge and practice, inaugurated a program of postgraduate education for its members. This consisted of lectures and discussions once or twice a year for periods of from one to two days in the principal centers of population of each of the fourteen councilor districts of the state. This program proved very acceptable, and the attendance was encouraging. Almost one third of the income of the society was devoted to this work.

From the beginning, however, few who had given serious thought to the matter expected this casual type of teaching to meet the needs of the profession. It was felt that it would serve to stimulate our members to seek other sources of instruction where their needs and interests would be adequately met. This did not prove to be the case. There was no increase in attendance of our members on the longer and more academically arranged courses being given in various medical centers of the country. It was then decided to appeal to our two medical schools for advice and assistance.

Fig. 1.—Attendance in 1929.

In 1926 representatives of the University of Michigan Medical School and of the Detroit College of Medicine and Surgery [1] were invited to meet with the council of the state medical society to consider ways and means of providing for the increasing needs for postgraduate education in Michigan. A committee, representing the two medical schools and the state medical society, was appointed to study the problem. The following year a report was made, the main points of which were as follows: That postgraduate education under academic direction was clearly called for, and that the University of Michigan, as a state-tax supported institution engaged in undergraduate medical education, had a particular obligation to undertake such a program which, after all, was but a continuance of its undergraduate teaching designed to supply competent medical service to the people of the state.

The committee recommended that postgraduate teaching should not be confined to the University of Michigan Medical School and Hospital. It felt that there were many centers in the state which should be made available for postgraduate study where postgraduate teaching might be established.

Further, it was felt that the medical school of the university should, in its administration of the program, seek and maintain the closest possible cooperation with those extramural centers, with the view of developing and utilizing existing facilities to the fullest, and that physicians interested in medical education and qualified to teach might be invited to become extramural members of the faculty.

It was further recommended that a department of postgraduate medicine be established in the medical school of the university to direct these activities rather than that a new and separate organization or school be instituted, at least in the beginning.

In 1927 the board of regents approved the establishment within the medical school of a department of postgraduate medicine, under the usual conditions governing a department of the medical school. At the annual meeting of the state medical society in 1928, the council approved two committees; one, the Advisory Committee on Postgraduate Education, representing the University of Michigan Medical School, the medical profession and the state department of health; the other, a special committee in the city of Detroit (Wayne County Medical Society), where immediate developments were contemplated, to advise on local arrangements.

1. Now Wayne University College of Medicine.

The program has been developed in accordance with these early recommendations; namely, that postgraduate education be carried on under academic direction, that responsibility for it be centered in the undergraduate medical school and that it be closely coordinated but sufficiently decentralized to be within reach of every practitioner of the state.

Practitioners' courses of one month's duration, given in 1929 and 1930, while encouraging in point of attendance, proved too short for adequate presentation of necessary subject matter and the time too long for the average practitioner to absent himself from practice. It was then that we decided on one-week courses in various subdivisions of practice, and subsequently on extending the work into the state in a continuous four year program of eight days each year in several centers. As time went on, longer and more carefully supervised courses were asked for. To provide for these, four and eight week courses were developed in the university undergraduate summer session, and special opportunities were provided throughout the year to meet individual needs.

During 1936-1937, through an appropriation from the federal government, the state department of health financed a program in maternal and child welfare in two of the more sparsely populated areas of the state, and all the subjects pertaining to these fields in the extramural programs were paid for by that department. Federal grants have been utilized to extend but not to replace the regular program, and all courses, regardless of their origin or support, are cleared through the Advisory Committee on Postgraduate Education of the State Medical Society.

In addition to the regular program, there are two educational activities importantly affecting practice in Michigan which may not have counterparts elsewhere. Centers for care of indigent children are maintained by the Children's Fund of Michigan at Traverse City and Marquette—distances of 300 and 500 miles from the university. Both are subsidiaries of the University Hospital, and members of the staffs hold appointments in the University of Michigan Medical School. Teaching clinics are held regularly and are well attended by the local physicians. Consultation services are at all times available and prove acceptable to the profession. Besides being permanent centers for care and teaching in children's diseases, these units are utilized in the state postgraduate program.

Another important contribution is being made by the W. K. Kellogg Foundation through its educational activities in seven counties of the state. Originally designed for health service to children, this organization has now embarked on a broad program of education for community betterment, with emphasis on postgraduate education in the professional fields. Besides attendance on the state postgraduate program in medicine, physicians in this area have frequent local meetings, sponsored by the foundation, for which speakers are assigned by this department. Last year, courses were subsidized by the foundation for 103 physicians at centers outside the state.

The Michigan State Medical Society has approved certification for postgraduate study. Under present arrangements there are four methods whereby the practitioner may satisfy the requirements of the state medical society for a certificate in postgraduate education:

1. Through attendance on the extramural course over the four year period.
2. Through attendance on a one week composite of the extramural course given yearly in an intramural center over the four year period.
3. Through attendance on the intramural intensive courses, which may be taken in one year or over a period of four years.
4. Through comparable study periods here or elsewhere.

None of these outlined courses, except the regular summer session courses, carry university credit.

There are educational requirements for membership in practically all of the societies in special fields of practice. These regulations are made not only to raise

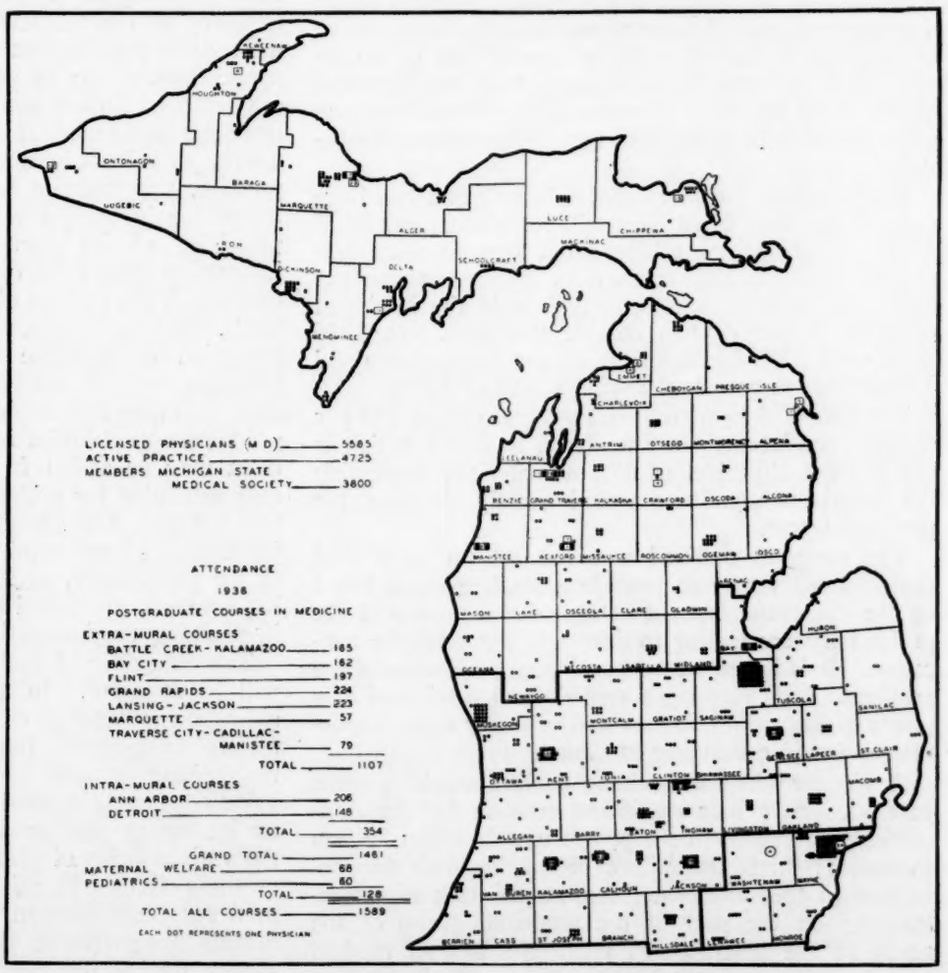

Fig. 2.—Attendance in 1936.

the qualifications of the membership but also for the information of the public as to where it may look with assurance for adequate medical care. Is it unreasonable, then, to predict that family practice will gradually assume not only the dignity of a specialty but also a qualifying standard? From time to time the question has been raised of requiring postgraduate attendance of the family physician for maintenance of membership in the state society. While arriving at no conclusion, the Michigan State Medical Society has given this matter considerable thought and feels that, if such requirements are deemed desirable, credit should be given for many professional activities apart from attendance on formal teaching programs; namely, teaching, research, contributions to medical literature, active membership in learned societies, membership on a hospital staff and attendance on local, state, national and other society meetings. These and other considerations might properly be included in requirements for membership.

During the eight years that this program has been carried out there have been 4,774 registrations, 2,127 Michigan physicians taking from one to seventeen courses each. In 1929 seventy-six Michigan physicians took postgraduate courses, forty-four in the Michigan program and thirty-two outside the state. In 1936 there were 1,589 in attendance on the state courses and 143 on courses outside the state, a total of 1,732.

The cost of the program last year was about $10 per capita. An increase in attendance to 2,500, which is our present objective, while not materially increasing the present expenditure would greatly decrease the per capita cost.

The program outlined was not set up as a final standard but rather to provide a starting point based on the maximum amount of time the members of the profession were willing to devote to postgraduate education. It is by no means considered a solution of the problem. It is meeting a well defined need, and it is pointing the way to further and probably more important efforts in continuing education.

A pioneer [2] in postgraduate medical teaching some years ago gave four significant reasons for the difficulties encountered in the program with which he was connected: first, the failure of the hospitals to participate in the movement; second, the lack of understanding on the part of the academic group of the needs of the practitioner; third, the lack of method and experience in teaching of many of the willing volunteers; fourth, the apathy of the profession as to its needs for further study. Consideration should be given to this experience in the planning of a postgraduate program. We too have encountered each of these difficulties in greater or lesser degree. That they are not insurmountable obstacles and that they can be overcome by careful planned mobilization of all agencies —the medical schools, the profession, the department of health and the hospitals—are proved by the progress of the Michigan program.

The advantages of centralization of the direction of the postgraduate program in the university are those associated with the function and permanence of the university itself. Academic direction makes possible a long-term program, unhampered by constantly changing leadership with its inevitable accompaniment of crests of enthusiasm and valleys of relative indifference. It facilitates the proper deposition of records and credits, the correlation of special and general courses and the selection and distribution of speakers and material to insure uniformity of presentation. The centralization of the direction further enables a successful correlation of activities in the health education of the public with the activity of the physician, prevents dissipation of effort and funds and permits a constant study of the field of practice and its changing needs.

The experience over the past eight years seems to confirm the wisdom of the decision of the profession to place the responsibility for the direction of postgraduate education in the undergraduate school. In the continuing education of the family physician the tendency of the teacher-clinicians and the interest of the student-practitioners turn naturally toward clinical applications. Year by year the practitioner finds himself removed further and further from the science that underlies sound medical practice. In order to safeguard the proper balance between fundamental knowledge and practice, postgraduate teaching must identify, briefly but positively, every new procedure with the underlying principles of its operation. Postgraduate medical instruction should be directed by those intimately in touch with the sources of knowledge in their respective fields. In other words, the responsibility for continuing education in medicine should center in the undergraduate medical school, where there are teachers trained to give this emphasis. As the demand for postgraduate opportunities increases, personnel and equipment may be added from time to time, thereby not only providing for postgraduate needs without duplication but also strengthening the resources of the school for undergraduate requirements. Then, too, the needs of the practitioner, as revealed in postgraduate teaching contacts, are found to be enlightening and helpful in planning the instruction of future doctors.

The difficulties of evaluating a program such as this will be apparent. In attempting such a study, consideration is being given to several other movements—efforts to improve hospital standards, the gradual replacement of older men by those more recently and more adequately trained and, finally, the influence of an increasing number of highly trained specialists in the various fields of medicine. The relative usefulness of these factors in raising the standards of practice need not cause concern here. Our studies do show a notable improvement in the quality of professional service during this period, and this is what we are most interested in at this time.

These experiences in medicine have led to similar developments in other professional fields. About four years ago, at the request of the president of the University of Michigan, the board of regents authorized a committee to study the needs for postgraduate education in three other health fields; dentistry, public health and nursing. The studies that followed showed needs and opportunities similar to those found in the field of medical practice and led to the recommendation that a beginning in postgraduate teaching be made in each of these, including also the teaching profession, which touches so importantly on health problems in the school system of the state. Postgraduate work began immediately in dentistry, the year following in public health and in education and last year in nursing.

As the title of this paper indicates, it was my purpose to cite our experience in these several fields, but the interest in postgraduate education in medicine

2. Jennings, J. E.: Bull. New York Acad. Med., May 1928.

is so great and the problem so pressing that I have reviewed only our experience in this field. However, progress in continuing education in all these fields, as well as in a program of health information for the public, is essential if an effective and orderly health service is to be achieved.

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THE TEACHING OF NUTRITION TO STUDENTS OF MEDICINE

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Although it is obvious that the study of nutrition should have a place among the fundamental courses in a medical school, it has not yet been included in the curriculums of many schools. Just as the study of pharmacology provides basic knowledge needed for the writing of prescriptions, so the study of nutrition should precede and be prerequisite to the prescribing and ordering of diets. Yet, in the majority of medical schools, students receive their only instruction in nutrition in their preliminary courses in biochemistry and physiology. Hence they obtain but limited knowledge of normal nutrition, scant knowledge of dietetics and no knowledge at all of the nutritional state and needs of diseased persons.

Realizing the need for an understanding of nutrition, several years ago we organized a voluntary course consisting of fifteen lectures and practical demonstrations on nutrition and diet in disease. So satisfactory were the results that we take this opportunity to report our plan for the benefit of others.

The instruction was conducted in the manner of a seminar. A formal presentation of each subject was given by a physician, research worker in nutrition or dietitian. A free discussion of the subject followed. The students were interrogated on fundamentals of physiology, biochemistry, pathology and nutrition. Information on the pathologic physiology of the disease under discussion was reviewed. Practical demonstrations, prepared by the dietitian, were presented. Reasons were given for the diet prescriptions that were advised. When feasible, mimeographed material of the text was provided. In addition, certain students were assigned special diets to calculate, and these were presented for discussion at subsequent seminars. In each case the student was asked to give the reasons for his prescription, to justify his selection of foods and to discuss them from the standpoint of their psychologic appeal, palatability, number of calories per portion, digestibility, amount of residue, and quantity and quality of protein, fat, carbohydrate, vitamins and minerals.

The following summarizes briefly the work which was covered:

THE NORMAL DIET

The first sessions were devoted to discussions of the normal diet and the dietary properties of foods. It was explained that many diseases are in part the result of metabolic disturbances resulting from long-continued food deficiencies. It was shown how the normally balanced diet forms the basis of special diets. Trays representing normal diets were demonstrated, and, by additions and subtractions, the quality and quantity of the foods on the trays were altered to fit special dietary prescriptions. The food shown was discussed from the standpoint of palatability, attractiveness and dietary properties.

A discussion followed of the energy needs of the body and of energy-producing foods, and of the protein, mineral, vitamin and water requirements and how they are satisfied.

The students were asked to record in detail their food intake for a period of ten days, in order to compare their dietary habits with the calculated optimum diet. These records were discussed in the light of the subject matter presented.

A tray of foods demonstrating various vitamin-containing foods was shown, and these were contrasted with commercial vitamin preparations from the standpoint of relative cost, convenience of administration, and psychologic effect.

To sum up the normal diet a basal or foundation diet was described and demonstrated. The fundamentals of menu building were explained, and attention was drawn to the importance of adequate quantities of vitamins and of mineral salts. The students were asked to alter the basal diet in calories and bulk without changing the vitamin and mineral salt content. Adjustment of this menu for a person of slender build and also for one of stocky build showed clearly the fundamentals underlying the planning of diets for persons of different physical and constitutional types.[1]

CALCULATION OF DIETS

The diabetic diet was used to illustrate the importance of quality and quantity of foods and to show methods of calculating diets. Emphasis was placed on the importance of planning a diabetic diet so that a minimum of insulin would be needed. The significance of the relative rates of absorption of carbohydrate from 5 to 10 per cent fruits and vegetables was discussed. It was demonstrated that the diabetic diet is apt to be low in vitamin B and that special provision must be made for its inclusion in the diet as prophylaxis against neuritis. It was stated that the content of vitamin B in the "normal diet" also is apt to be inadequate.

THERAPEUTIC DIETS AS MODIFICATIONS OF THE NORMAL DIET

Several sessions were devoted to the study of diet in disease. Attention was called to the fact that the terms nonresidue, liquid, soft, light, bland and general diet are not standard in all hospitals.

The normal diet was varied to meet the needs in specific diseases by altering (1) energy content, (2) consistency and residue, (3) amount of protein, fat and carbohydrate, (4) amount of the different mineral elements, (5) amount of the different vitamins, (6) water content and (7) acid-base balance.[2] For each disease the students were asked to submit properly

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Read before the Thirty-Fourth Annual Congress on Medical Education and Licensure, Chicago, Feb. 14, 1938.

1. The following books were recommended:
Bogert, L. Jean, and Porter, Mame T.: Dietetics Simplified, New York, Macmillan Company, 1936.
Barborka, C. J.: Treatment by Diet, ed. 2, Philadelphia, J. B. Lippincott Company, 1935.
Stern, Frances: Applied Dietetics, Baltimore, Williams & Wilkins, 1936.
Waller, Dorothy S.: Nutritive Value of Foods, Ann Arbor, Mich., George Wahr, 1933.
Best, C. H., and Taylor, N. B.: The Physiological Basis of Medical Practice, Baltimore, William Wood & Co., 1936.

2. Bogert and Porter: Dietetics Simplified.[1]

calculated diets to demonstrate each type of alteration. The therapeutic indications for these altered diets were given in detail.

It was emphasized that it is the physician's duty to see that all special diets supply the necessary nutritional substances in adequate quantity so that states of malnutrition do not develop. If a special diet does not contain optimal quantities of vitamins, minerals and proteins, it is certain that a deficiency disease will develop. When it is necessary to put the patient on a highly restricted diet or a qualitatively deficient one, such a regimen should not be maintained for long.

HOW TO ORDER HOSPITAL DIETS

In teaching the students how to order hospital diets, the following instructions were given:

1. Learn what the patient would receive on the regular hospital menu before asking for a special diet.
2. Order diets by quantity of food elements (carbohydrate, fat, protein, minerals, vitamins and water) rather than by name (e. g., "bland" diet).
3. Do not make the diet unnecessarily restrictive.
4. Learn whether a patient is eating all the food on his tray before ordering interval feedings.
5. Before prescribing a weight-reducing or a weight-increasing diet, learn the previous calorie intake. By gradual increases or reductions in the quantity of food, psychologic or physical difficulties will be avoided.
6. Feel free to consult the dietitian in regard to all dietary problems. Through experience with patients and their problems, she is often able to give valuable suggestions and advice.

PROBLEMS CONCERNED WITH FORCING FLUIDS

Certain difficulties encountered in the forcing of fluids were considered. The palatability of flavored fluids in various illnesses was shown to be of importance. It was pointed out that a well person may enjoy any kind of fruit juices, whereas the sick person, especially if he is febrile, may rebel at the prospect of ingesting large quantities of these same fruit juices.

It was emphasized that, when large amounts of fluid are needed, a fluid without pronounced flavor and with a low sugar content is tolerated best. The students were allowed to taste various kinds of fruit juices and other beverages. The wide variation in cost of different drinks was shown. It was pointed out that colored fluids have more appeal for children than uncolored fluids.

DIETARY FADS

Dietary fads, and regimens fostered by so-called nutrition and health lecturers, were discussed in detail. Their influence in making many persons food conscious is evidenced by the increase in the number of "health-food" stores throughout the country. Although some good has been accomplished by the focusing of attention on the importance of diet in maintaining health, yet harm has often resulted from the unbalanced diets so often advised. Furthermore, the foods sold are in many cases unnecessarily expensive.

It was suggested that each student keep a file of diets sponsored by food faddists, so that he may have knowledge of and be able to discuss such diets with his patients.

SELECTION OF FOODS

The assignment of practical problems and the use of demonstrations in the teaching of dietetics and its relation to disease have obvious value from the standpoint of selection of foods. The writing of prescriptions and the observation of the diet prescribed make for evident errors in knowledge and judgment. The following incidents illustrate the manner in which such errors were brought promptly to the attention of the students: On one occasion a bland diet prescribed by a student was found to include lettuce and tomato salad; the error was in part due to his fondness for this particular food. Another student who planned a low-fat diet discovered, on demonstration, that his selection of food was most unappetizing. His comment was that the "diet looked much better in writing than the food did on the tray." But to the trained eye, the menu would not have looked appetizing even in writing! By means of such glaring errors as these, the students learned to appreciate the importance of careful selection of food from the standpoint of the patient whose appetite is not easily tempted.

DIETARY CONSULTATION

One important feature of the instruction was the provision of an expert dietitian to act as consultant in the outpatient department. The students were advised to confer with her on details of diet and to discuss with her the dietetic problems, both economic and physiologic, of their patients. By these means and by consultation with the hospital dietitian, close correlation between instruction and practical application was obtained.

SUMMARY

Our students were impressed with the importance of malnutrition as a cause of disease and with the significance of diet as a therapeutic agent in the prevention and treatment of disease. They were afforded an opportunity to review the physiology and biochemistry of digestion in the normal person and to learn of the alterations that occur in diseased persons. The application of diet to the treatment of specific diseases was shown. Demonstrations were given illustrating the importance of vitamins and minerals in the maintenance of good health. The problem of the subclinical vitamin deficiencies was discussed in detail.

By demonstrations, it was shown that palatabilty, proper combinations of food, attractiveness, service and cost of food are important considerations in the planning of diets.

The writing of dietary prescriptions by name was discouraged. By instruction in the principles of the science of nutrition, our students learned to write intelligent dietary prescriptions based on the broadest application of these principles.

University of California Hospital.

Deaf-Mutes.—According to Dr. Harold L. Babcock, professor of otology at Boston University School of Medicine, in a lecture April 5, at the university's school of education, there were 44,885 deaf-mutes in the United States, in 1937, or one to every 2,359 of the population. Two forms of deaf-mutism are recognized, the congenital and the acquired, the latter predominating in numbers by about two to one. The dominance of deaf-mutism is a family taint, and an individual coming from such a family may pass the defect on to his children although he himself is free from the disease. Children of normal mental development who lose their hearing after the age of 6 rarely become dumb. The most important single cause of acquired deaf-mutism is cerebrospinal meningitis; other infections that may cause it are scarlet fever, measles, diphtheria and mumps. As the outlook for the return of hearing in both forms of deaf-mutism is practically hopeless, the problem of treatment resolves itself into a problem in education.

MEDICAL TREATMENT OF HYPERTHYROIDISM WITH A HIGH FAT DIET

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The current surgical treatment of hyperthyroidism is attended by a high percentage of beneficial results and entails only a relatively short period of invalidism. This state of affairs, gratifying though it is, has left little or no opportunity for attempts at medical treatment in severe cases of the disease. A patient who absolutely refused to submit to surgical operation offered us such an opportunity. The results of medical treatment in her case were strikingly successful and warrant further trial of the form of therapy which we employed.

Bed rest and high caloric diets are useful adjuvants in the treatment of hyperthyroidism but are in themselves of very limited effect in severe cases. It is generally agreed that the use of iodine in severe hyperthyroidism is effective as a temporary, palliative measure but should be restricted to the preparation of the patient for surgical intervention. Our patient did not receive any iodine (except that which might have been incidentally present in the ordinary foodstuffs of her diet) either before or after she came under our care. The rationale of our treatment was based on previous experimental work demonstrating that the composition of the diet might influence the action of administered thyroxine or the course of a spontaneously occurring hyperthyroid state.

Abelin and his co-workers [1] have shown that rats fed on a diet of green vegetables and rich in minerals and vitamin A become resistant to the action of thyroid extract as judged by their storage of liver glycogen. Several subsequent clinical reports [2] have given evidence of moderate benefit obtained from the use of vitamin A, or fatty substances containing it, in cases of exophthalmic goiter. More recently Hoffman [3] has demonstrated that the feeding of olive oil to thyroxine-treated mice will prevent the fall in serum lipase which would otherwise occur. These fat fed animals also survived longer than similarly thyroxinized control animals. Loumos [4] has also demonstrated that the feeding of certain pure fats will cause rats to be resistant to administered thyroid substance as judged by weight loss. These results are consistent with the observations of Bodansky and Duff [5] and of Danforth and Loumos [6] on the decreased effectiveness of thyroid extract in pregnancy, in which condition the blood fats are apt to be increased. These experimental results suggested the possibility that the hypolipemia of hyperthyroidism might be more than a secondary or incidental effect of the disease. We therefore proceeded to treat our patient with a high fat diet.

From the Max Pam Unit for Metabolic Research and the Department of Metabolism and Endocrinology, Michael Reese Hospital.

Read by title before the American Society for Clinical Investigation in May 1937 (abstr. J. Clin. Investigation **16**: 666 [Aug.] 1937).

1. Abelin, I., and Schönenberger, A.: Ztschr. f. d. ges. exper. Med. **88**: 528, 1933. Abelin, I.: Ztschr. f. Vitaminforsch. **4**: 120 (April) 1935.
2. Wendt, H.: München. med. Wchnschr. **82**: 1160 (July 19) 1935.
3. Hoffman, M. H.: Effect of Thyroxine and Antithyroid Substances on the Serum Lipase, Arch. Int. Med. **54**: 427 (Sept.) 1934.
4. Loumos, S.: Proc. Soc. Exper. Biol. & Med. **31**: 895 (May) 1934; ibid. **33**: 424 (Dec.) 1935.
5. Bodansky, Meyer, and Duff, Virginia B.: Endocrinology **20**: 537 (July) 1936.
6. Danforth, D. N., and Loumos, S.: Proc. Soc. Exper. Biol. & Med. **34**: 870 (June) 1936.

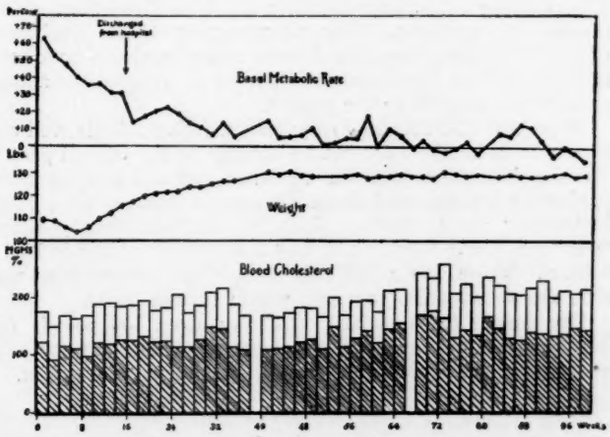
REPORT OF CASE

History.—Mrs. R. J., a white woman, aged 36, a housewife, seen in the Mandel Clinic of the Michael Reese Hospital, presented the symptoms and signs of severe hyperthyroidism. It was the consensus of both the medical and the surgical members of the thyroid group that prompt subtotal thyroidectomy was indicated. When it became apparent that the patient was adamant in her refusal to submit to operation, she was offered and accepted the experimental form of therapy to be described.

July 11, 1935, the patient was admitted to the Max Pam Unit for Metabolic Research of the Michael Reese Hospital. There was nothing significant in the history prior to the onset of the present illness. The menses began at the age of 14, occurred regularly every twenty-eight days, lasted two days and were not painful. The patient had been married for nineteen years and had two children alive and well. There had been two induced miscarriages. She smoked little, took alcohol in moderate amounts and stated that she did not use drugs.

The onset of the present symptoms occurred four months prior to admission. The patient noticed nervousness and irritability, increased perspiration and tremor of the hands. These symptoms progressed and, in addition, there were increasingly frequent attacks of dull, aching, substernal pain. Physical exertion was accompanied by dyspnea and occasionally also by swelling of the ankles. During this period there was a loss of 14 pounds (6.4 Kg.).

Physical Examination.—The temperature was 98.6 F., pulse rate 116 per minute and respiratory rate 20 per minute, at rest in bed. The weight was 111½ pounds (50.5 Kg.). The skin



The plotted values for the basal metabolic rate, weight and blood cholesterol respectively represent average values for periods of two weeks from the time of admission to the hospital to the present. The vertical bars representing the blood cholesterol values indicate total cholesterol. The cross-hatched portion indicates cholesterol esters, while the clear portion indicates the free cholesterol.

was flushed and the patient was perspiring freely. There was some increase in the width of the palpebral fissures but no exophthalmos. There was a definite lid lag but no other eye signs. The thyroid gland was diffusely enlarged and smooth in consistency. There were no abnormalities in the respiratory system or abdomen. The apex beat of the heart was diffuse. Percussion revealed the left cardiac border to be 10 cm. from the midsternal line. The rhythm was regular and there were no adventitious sounds. The blood pressure was 148 systolic, 74 diastolic. There was a fine tremor of the fingers. The deep reflexes were slightly hyperactive. Sensation was normal.

Laboratory Examination.—There was a faint trace of albumin in the urine; otherwise it was normal. Examination of the blood revealed red blood cells 4,200,000, hemoglobin 75 per cent (Sahli), white blood cells 5,900, neutrophils 65 per cent, lymphocytes 20 per cent and monocytes 15 per cent. Chemical examination of the blood revealed sugar 89 mg. per hundred cubic centimeters, total cholesterol 176 mg. and cholesterol esters 123 mg. An electrocardiogram showed slurring of the QRS complex in lead 3, negative ST in lead 2 and tall and sharply peaked T in lead 2. These appearances were interpreted as

suggestive of myocardial involvement. July 13, the basal metabolic rate was +62.9; July 16, +53.3; July 19, +55.2.

Progress.—While in the Hospital: For two weeks following her admission, while the control data were being obtained, the patient was given a diet consisting of protein 80 Gm., fat 80 Gm. and carbohydrates 400 Gm., total calories 2,640.

July 24, the diet was changed to protein 90 Gm., fat 230 Gm., carbohydrates 90 Gm., total calories 2,790. For a period of twenty-three days (August 9 to September 2) 3 Gm. daily of cholesterol was added to the diet by incorporating it in the butter ration. Rest in bed was enforced. No other form of therapy was employed at any time.

There was a gradual regression of all symptoms and signs of hyperthyroidism from the time at which the high fat diet was started. The addition of cholesterol to the diet had no apparent effect on the rate of improvement and was discontinued for this reason. The attacks of substernal pain, which occurred almost daily at the time of admission, became less frequent and did not recur after August 8. The patient was discharged from the hospital October 14. At that time the basal metabolic rate varied around +30, her blood pressure was 130 systolic, 80 diastolic, and her weight was 118 pounds (53.5 Kg.).

Since Discharge from the Hospital: The patient has continued on the same high fat diet at home and has returned for observation once every week to date, with few exceptions. At each visit she has been questioned as to recurrence of symptoms, a basal metabolic determination has been made and blood has been drawn for estimation of cholesterol. Other examinations have been made, but at less frequent intervals.

Since about January 1936 the patient has presented no symptom, sign or laboratory evidence of hyperthyroidism, either residual or recurrent. The accompanying chart graphically demonstrates the progressive changes in the basal metabolic rate, body weight and blood cholesterol, from the time of her admission to the hospital to the present.

At present (October 1937) the patient feels perfectly well and is able to undertake as strenuous activity as any normal person. Her basal metabolic rate has varied around ±0 and her blood cholesterol has remained above 200 mg. per hundred cubic centimeters for many months. A recent electrocardiogram shows T in leads 1 and 3 smaller, in lead 3 now inverted and in lead 4 normal. There was a left axis shift. The interpretation was that the electrocardiogram was within normal limits.

Her weight has remained constantly about 130 pounds (59 Kg.) and has not gone higher only because she has voluntarily reduced her total caloric intake in order to avoid overweight.

SUMMARY

In the case here presented, of acute and severe hyperthyroidism, the attending physicians and the consulting surgeon were in complete agreement as to the necessity for prompt surgical intervention. Because the patient absolutely refused to submit to thyroidectomy it was deemed justifiable to attempt to treat her by medical means. The treatment, for reasons outlined, consisted of a high fat diet. Iodine was not administered at any time. On this treatment the patient made a striking and complete recovery, which has persisted for almost two years, during which time she has been observed at weekly intervals.

It should be clearly understood that we do not believe that this single case warrants the routine employment of our dietary treatment in patients who are willing to submit to the established surgical therapy. It is possible that our patient might have recovered spontaneously under any expectant form of treatment. Furthermore, the time required for our treatment, even if ultimately proved to be generally effective, makes it economically less practical than the surgical method. Nevertheless our results should serve to stimulate interest in the application of the more recent knowledge of thyroid physiology to the treatment of hyperthyroidism. Meanwhile, they suggest a mode of procedure which may be of value in certain cases (such as ours) in which surgery is refused or in which the hazards of surgery are too great. Since our opportunities for the further testing of this form of therapy are limited, we are reporting our experience in order that others may be able either to confirm or to deny its value, as opportunities present themselves.

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THE RELATIONSHIP OF VITAMIN A TO THE HEALTH OF INFANTS

FURTHER OBSERVATIONS

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In previous communications [1] we stated that the average diet of artificially fed infants contains an adequate amount of vitamin A. This contention was based on the fact that no improvement in the nutritional status or increase in the immunity to infections was brought about by adding large quantities of vitamin A in the form of cod liver oil, halibut liver oil or carotene (which contains the provitamin) to the diet employed in the Home for Hebrew Infants. The diet used at this institution is similar to that which is generally prescribed in private practice by pediatricians and by general practitioners. For example, from 1 to 2 ounces (30 to 60 cc.) of milk is given per pound (453 Gm.) of body weight, the amount depending on the age of the infant; orange juice is prescribed at the age of 6 weeks, cereal at 4 months, vegetables at 6 months, desserts at 8 months, eggs at 10 months and meat at 1 year.

TABLE 1.—*Approximate Number of International Units of Vitamin A in the Low and in the High Vitamin A Diet, as Compared with the Number in the Average Diet of Infants*

Age, Months	Low Vitamin A Diet	High Vitamin A Diet	Average Diet
3	500	17,165	2,100
6	750	17,415	3,000
12	1,050	17,715	4,700

Recently Mackay [2] carried out an investigation on the vitamin A requirement of infants in the outpatient department of a London hospital. Sixty infants were given extra amounts of vitamin A, and fifty-eight infants receiving the usual diet served as controls. These infants were observed for an average period of eight months. Mackay found that there was no difference in the morbidity or the mortality rate for the two groups of infants, nor was there any distinction in the rate of growth. However, of sixty infants who received extra vitamin A, sixteen, or 27 per cent, had some form of infective cutaneous lesion, whereas of the fifty-eight infants in the control group, thirty, or fifty-two per cent, had cutaneous infections. It should be mentioned, however, that Mackay included as cutaneous infections such conditions as diaper rash and intertrigo. She expressed

From the Home for Hebrew Infants.

1. Barenberg, L. H., and Lewis, J. M.: The Relationship of Vitamin A to Respiratory Infections in Infants, J. A. M. A. **98**: 199 (Jan. 16) 1932. Hess, A. F.; Lewis, J. M., and Barenberg, L. H.: Does Our Dietary Require Vitamin A Supplement? ibid. **101**: 657 (Aug. 26) 1933.

2. Mackay, Helen M. M.: Vitamin A Deficiency in Children, Arch. Dis. Childhood **9**: 133 (June) 1934.

the opinion that infections of the skin are one of the earliest manifestations of vitamin A deficiency and that adding supplements of vitamin A to the diet of infants will diminsh the incidence of these infections.

On the other hand, Blackfan and Wolbach [3] found that in thirteen infants suffering from vitamin A deficiency "infection of the skin, localized or general, was noticeable by its infrequency." This observation is of considerable importance because of the fact that six of these infants suffered from xerophthalmia, a manifestation of marked vitamin A deficiency. All six infants had received a diet grossly inadequate in vitamin A. Two received skimmed milk, two boiled condensed milk and one a preparation of soy bean flour (sobee), and the sixth could not swallow sufficient food on account of congenital malformations.

The diagnosis of vitamin A deficiency in the case of six infants not exhibiting xerophthalmia, in Blackfan and Wolbach's study, was made post mortem when the characteristic histologic changes in the epithelial tissues were noted, metaplasia from columnar or cuboidal into keratinized stratified squamous epithelium. Five of these infants had chronic generalized infections, and one had suffered from congenital malformation of the bile duct. They had received a diet which included cod liver oil; in fact, four of them were given cod liver oil with dilutions of cow's milk for a considerable period while at the hospital. It seems apparent, therefore, that the development of vitamin A deficiency in this group of infants cannot be accounted for by an inadequacy of vitamin A in their diet but was due, as the authors stated, "to grave metabolic disturbances interfering with proper absorption, storage and utilization of vitamin A or its precursor, carotin." The state of nutrition was estimated in twelve of the cases of vitamin A deficiency reported by Blackfan and Wolbach. All of the infants were undernourished; seven were from 20 to 40 per cent below normal weight, three were from 40 to 60 per cent below the average and two were 62 and 68 per cent, respectively, below the average. Twelve of the thirteen patients showed evidences of infection of the respiratory tract, and in nine instances involvement of the respiratory system consisted of a generalized infiltration of the lungs.

TABLE 2.—*Incidence and Severity of Infections of the Respiratory Tract in the Two Groups*

Groups	Number of Infants	Average Age at the Beginning of Study, Mo.	Average Period of Observation, Mo.	Total Number of Infections	Infections per Infant	Severity		
						Mild %	Moderate %	Severe %
Small amounts of vitamin A...	51	5.1	6.8	133	2.6	64	22	14
Large amounts of vitamin A...	53	5.2	6.8	144	2.7	61	15	24

In view of the fact that many physicians rely on vitamin D milks or viosterol for the prevention of rickets in infants and therefore do not prescribe cod liver oil or other antirachitic preparations containing vitamin A, the question arose as to the margin of safety with respect to vitamin A in the average diet of infants. Is the diet barely adequate in vitamin A or is the vitamin A content so excessive as to insure a wide margin of safety? Previous studies, as already mentioned, have indicated that the average diet is adequate in vitamin A but have given little information [4] as to the "degree of adequacy." If the average diet is on the borderline as to adequacy of vitamin A, it would seem advisable to supplement it with preparations containing the vitamin. The addition of such products would be necessary especially for those infants who fail to take the whole amount of their prescribed diet. If, on the other hand, a considerable reduction in the vitamin A content of the average diet has no deleterious effect, it would seem superfluous to add extra amounts of vitamin A.

TABLE 3.—*Incidence and Severity of Infections According to Age During Administration of Low and of High Vitamin Diet*

(Average period of observation, 6.8 months)

Age at Beginning of Study, Mo.	Vitamin A Diet	Number of Infants	Total Number of Infections	Severity			Infections per Infant
				Mild	Moderate	Severe	
0-3	Low	11	21	17	2	2	1.9
	High	10	27	21	2	4	2.7
3-6	Low	26	68	46	15	7	2.6
	High	26	65	38	10	17	2.5
6-9	Low	14	44	22	12	10	3.1
	High	17	52	29	9	14	3.1

In order to obtain information on the margin of safety with respect to vitamin A in the average diet of infants, it was decided to follow the course of a group of infants receiving a diet which contained considerably less vitamin A than does the average diet. It was also planned to observe simultaneously another group of infants receiving a diet which contained an excessive amount of vitamin A and to compare the two groups of infants as to state of nutrition and resistance to infections. This study was carried out from November 1934 to June 1935 and from November 1935 to June 1936.

The diet low in vitamin A consisted of a dry preparation of milk which was partly skimmed (dryco) and which, when reconstituted to its original volume, contained 1.5 per cent fat. The vitamin A content of this milk was approximately 650 international units per quart of reconstituted milk,[5] as compared with an average of 2,775 international units in a quart of whole milk.[6] Orange juice was given at the age of 6 weeks, cereal at 4 months and vegetables at 6 months. Spinach and carrots, as well as butter and egg yolk, were excluded from the diet because of their high vitamin A content. Fifteen drops of viosterol were given daily. It will be noted in table 1 that infants aged 3 months received an average of approximately 500 international units of vitamin A, infants aged 6 months 750 units and those aged 12 months 1,050 units. This diet contained, as may be noted in table 1, about one fourth of the vitamin A content of the average diet of infants.

The infants on the high vitamin A diet were given the same foods as those on the low vitamin A regimen, but their diet was rendered high in vitamin A by the addition of fifteen drops of halibut liver oil [7] containing 16,665 international units of vitamin A. Infants aged 3 months, 6 months and 12 months given the high vitamin A diet received an average of approximately 17,165, 17,415 and 17,715 international units of vitamin A,

3. Blackfan, K. D., and Wolbach, S. B.: Vitamin A Deficiency in Infants, J. Pediat. 3: 679 (Nov.) 1933.

4. In one of our previous papers [1] we recorded our observations on nineteen infants who received a low vitamin A diet. However, because of the limited number of infants, one could not draw any definite conclusions from these observations.

5. Personal communication to the author from Dr. George Supplee, research director of the Dry Milk Company.

6. Sherman, H. C.: Chemistry of Food and Nutrition, New York, Macmillan Company, 1937.

7. Halibut liver oil combined with viosterol was supplied by Mead Johnson & Co.

respectively. These infants therefore received from seventeen to thirty-four times as many units of vitamin A as the infants receiving the low vitamin A diet. As will be noted in table 1, the vitamin A content of this diet contained from four to eight times as much vitaman A as the average diet.

Fifty-one infants ranging in age from 3 weeks to 9 months were given the low vitamin A diet, and fifty-three infants of the same age group received the high vitamin A diet. The average age of the two groups at the beginning of the study, as may be noted in table 2, was comparable, the former group having an average age of 5.1 months and the latter an average age of 5.2 months. The infants received these diets for an average period of six and eight-tenths months, so that the average age at the end of the period of observation was about 12 months. The infants in the two groups were housed in the same wards, and therefore external conditions, such as exposure to infections, nursing care and hygiene, were identical. Temperatures and weights were taken daily. Whenever the temperature rose above 100 F. a careful physical examination was carried out. Infections were classified as mild, moderate and severe, depending on the nature and the duration of the illness. Purulent otitis media, mastoiditis and pneumonia were considered severe infections. Complete physical examinations were made at monthly intervals.

A glance at table 2 reveals that the fifty-one infants receiving small amounts of vitamin A had 133 infections during the course of the investigation, an incidence of 2.6 infections per infant. The fifty-three infants receiving large amounts of vitamin A in their diet had 144 infections, an incidence of 2.7 infections per infant. Of the infections in the group receiving the low vitamin A diet, 64 per cent were classified as mild, 22 per cent as moderate and 14 per cent as severe, whereas, of those in the group receiving the high vitamin A diet, 61 per cent were mild, 15 per cent moderate and 24 per cent severe. Thus there was no significant difference between the two groups as to the incidence and the severity of infections of the respiratory tract.

In table 3 the incidence and the severity of infections of the respiratory tract are recorded in relation to age at which the special diets were begun. We collected these data in order to find out whether there was any difference in susceptibility to infections of the respiratory tract between the two groups of infants at the various age levels. It will be noted that, irrespective of the age at which administration of the special diets was begun, there was no significant difference as to incidence and severity of infections between the infants receiving large amounts of vitamin A and those receiving small amounts.

TABLE 4.—*Incidence and Severity of Infections for Seven Months After Administration of the Special Diets Was Discontinued*

Age at Beginning of Study. Mo.	Vitamin A Diet	Number of Infants	Total Number of Infections	Severity			Infections per Infant
				Mild	Moderate	Severe	
0-3	Low	11	16	10	2	4	1.5
	High	10	22	12	7	3	2.2
3-6	Low	26	19	11	4	4	0.7
	High	26	23	15	3	5	0.9
6-9	Low	14	9	5	2	2	0.6
	High	17	18	9	7	2	1.1

Both groups of infants were observed for seven months after administration of the special diets was discontinued; we wished to determine whether any differences in susceptibility to infections of the respiratory tract would be manifested at a later age. It will be observed, however, in table 4, that there was no difference as to incidence or severity of infections between the two groups for seven months after the discontinuance of the special diets.

At this point it should be mentioned that Clausen[8] expressed the opinion that a diet containing adequate amounts of vitamin A in early months of life may decrease the severity of infections during the latter part of the first year and during the second year. However, according to the data in tables 3 and 4, infants who received large amounts of vitamin A during the first few months of life were no less susceptible to severe infections during the second half of the first year and during the early part of the second year than those who had not received supplements of vitamin A during their first few months of life.

TABLE 5.—*Gain in Weight in the Two Groups*

Age, Months	Average Gain per Month, Ounces	
	Low Vitamin A Diet	High Vitamin A Diet
0-3	27.8	30.0
3-6	24.9	24.5
6-9	17.6	17.9
9-12	9.8	9.3

A comparison of the gain in weight between the two groups of infants is recorded in table 5. It will be observed that infants receiving small amounts of vitamin A gained just as well as infants receiving large amounts of the vitamin. It may be added that there was no difference as to rate of growth in length between the two groups.

Not only was no distinction discernible in the nutritional status and the resistance to infections of the respiratory tract of the two groups of infants, but there was no perceptible difference in the incidence of cutaneous infections, conjunctivitis and vaginitis. Since the appearance of cornified epithelial cells in the vaginal secretions is the earliest sign of vitamin A deficiency in the rat, according to Evans,[9] we examined vaginal smears and, as suggested by Blackfan and Wolbach,[2] scrapings from the conjunctiva, the mouth and the nose, of a number of the infants who received the low vitamin A diet. The results of these examinations were, however, negative.[9a]

COMMENT

This investigation revealed that the health of a group of infants receiving one-fourth the amount of vitamin A present in the average diet was just as good as the health of a group of infants receiving from seventeen to thirty-four times as many units of vitamin A. The low vitamin A diet contained, therefore, an amount of vitamin A which was above the minimum requirement as judged by the nutritional state of the infants and their resistance to infections. Thus it would seem that the average diet contains at least four times as many vitamin A units as the minimum requirement.

8. Clausen, S. W.: Nutrition and Infection, J. A. M. A. **104**: 793 (March 9) 1935.

9. Evans, H. M.: J. Biol. Chem. **77**: 651 (May) 1928.

9a. Since the completion of this study, we have had the opportunity of observing the effect of the special diets on a pair of apparently identical female twins. These infants were admitted to the institution at 3 weeks of age and were given formulas containing dilutions of whole milk until 2½ months of age, at which time one twin was placed on the low vitamin A diet and the other on the high vitamin A diet. They have received these special diets for four months and during this time no distinction between the twins has been noted as to incidence of respiratory infections, rate of growth in weight and in length and hemoglobin content of the blood. Repeated examinations of the urine, vaginal smears, and scrapings from the mucous membrane of the nose, mouth and conjunctiva in these two infants did not reveal any difference in the number or character of the epithelial cells.

How many units of vitamin A represent the minimum requirement for infants is not known. As a result of experiments on rats, cattle, sheep and swine, Guilbert [10] stated that mammals require approximately 72 international units (29 micrograms) of vitamin A per kilogram of body weight to prevent the development of vitamin A deficiency. If this generalization is applied to infants, the minimum requirement of vitamin A for a 3 month old infant weighing 6 Kg. would be about 432 units, for a 6 month old infant weighing 8 Kg. 576 units and for a 12 month old infant weighing 10 Kg. 720 units. Table 1 shows that these estimates are below the vitamin A content of the low vitamin A diet which we employed. Calculation of the vitamin A content of the average diet reveals that it contains from five to six times the minimum requirement as postulated by Guilbert.

One of the earliest signs of vitamin A deficiency in children and in adults, as well as in cattle, is night blindness, or poor dark adaptation. Jeans and his co-workers [11] reported that of the thirty-seven children from 7 to 10 years of age examined with a special photometer, seven had poor dark adaptation and were therefore suffering from vitamin A deficiency. These investigators gave 3,000 units of vitamin A to a child 11 years of age who had poor dark adaptation, and after two months the photometric tests were approximately normal. Another child 11 years of age, who had normal dark adaptation, was given 3,000 units of vitamin A for three months, during which time the photometric tests continued to be normal. For these two children, according to Jeans, 3,000 units seemed to meet the vitamin A requirements as judged by the special test for dark adaptation. Jeghers,[12] who studied the prevalence of night blindness among adults, concluded that 4,000 units of vitamin A daily represents the minimum requirement for adults and recommended 6,000 units daily to secure optimal effects in regard to dark adaptation. The experiences of Jeans and Jeghers with human beings are in agreement with the hypothesis of Guilbert that the requirement of vitamin A, in contradistinction to that of vitamin D, depends on body weight rather than on rate of growth. Thus adults required many more units of vitamin A than did children to protect them against night blindness. Similarly, it would seem probable that children require a greater number of vitamin A units than do infants to permit normal dark adaptation.

The difficulty of performing photometric tests for dark adaptation on infants is obvious, although a procedure for this purpose has recently been suggested by Friderichsen and Edmund.[13] Their method of testing the visual acuity of infants in the dark requires a great deal of patience and judgment on the part of the examiners, and it will be of interest to see whether it can be put to practical use in other clinics. It is possible that by means of this test the minimum requirement of vitamin A for infants will be ascertained.

SUMMARY

In order to obtain information on the margin of safety with respect to the vitamin A content in the average diet of infants, fifty-one infants were given a diet which contained approximately one-fourth the vitamin A content of the average diet and fifty-three infants were given a diet which contained from four to eight times the number of vitamin A units in the average diet. These infants were observed for an average period of six and eight-tenths months, and a comparison of the nutritional status and the incidence of infection of the two groups was made. The results showed that there was no difference as to nutritional state or as to susceptibility to infection between the two groups of infants. It would seem therefore that the average diet of infants contains at least four times as many units as the minimum requirement, as judged by the nutritional state of infants and their resistance to infections.

1 West Seventy-Third Street—1749 Grand Concourse.

10. Guilbert, H. R., and Hart, G. H.: Minimum Vitamin A Requirement with Particular Reference to Cattle, J. Nutrition **10:** 409 (Oct.) 1935.

11. Jeans, P. C.; Blanchard, Evelyn, and Zentmire, Zelma: Dark Adaptation and Vitamin A, J. A. M. A. **108:** 451 (Feb. 6) 1937.

12. Jeghers, Harold: The Degree and Prevalence of Vitamin A Deficiency in Adults, J. A. M. A. **109:** 756 (Sept. 4) 1937.

13. Friderichsen, C., and Edmund, Carsten: Studies of Hypovitaminosis A: A New Method for Testing the Absorption of Vitamin A from Medicaments, Am. J. Dis. Child. **53:** 89, (Jan.) 1937.

Clinical Notes, Suggestions and New Instruments

A NEW TYPE WALKING IRON

HOWARD E. SNYDER, M.D., WINFIELD, KAN.

R. A. Griswold [1] of Louisville used a skate type walking iron in the ambulatory treatment of fractures of the lower extremity in the fracture service at Louisville City Hospital in 1934 and 1935. It proved satisfactory but was discontinued because each iron had to be made to the individual pattern.

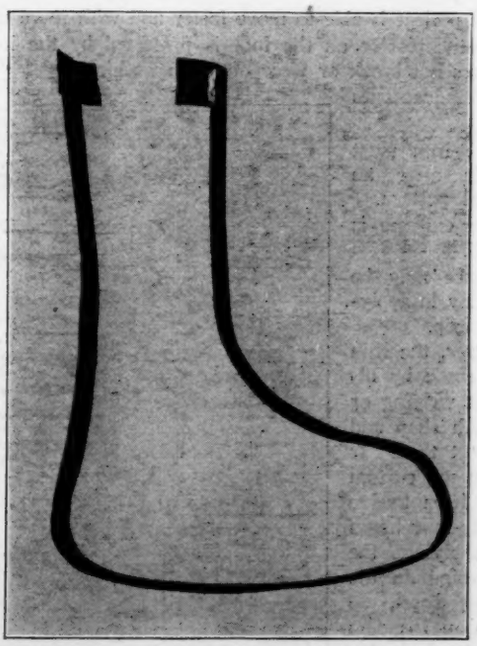

Fig. 1.—The walking iron, made of spring steel 1 inch wide and one-eighth inch thick.

This necessarily added to the expense. It was also difficult to have the irons properly made and applied when interns or residents were responsible for the task.

In October 1936 the principle of this skate type iron was used in treating a patient with a fracture dislocation of the left ankle and a fracture of the shaft of the right tibia. From the experience gained with this case a new iron has been developed.

The iron is made of spring steel 1 inch wide and one-eighth inch thick and extends down the back of the leg under the foot and back up the dorsum of the foot and front of the leg. A pattern is drawn in each case, the contour of the plaster cast

1. Griswold, R. A.: Personal communication to the author.

being accurately traced except on the plantar surface of the foot and dorsal surface of the toes. Here the iron is made to extend from 1 to 1½ inches below the heel and then gradually to curve upward so as just to touch the plantar surface of the cast at the toes. It then circles above the toes and again touches the plaster cast about 1 inch proximal to the web of the toes. The vertical arms extend half way up the leg. The pattern is delivered to the welder, and the iron is usually available in one or two hours.

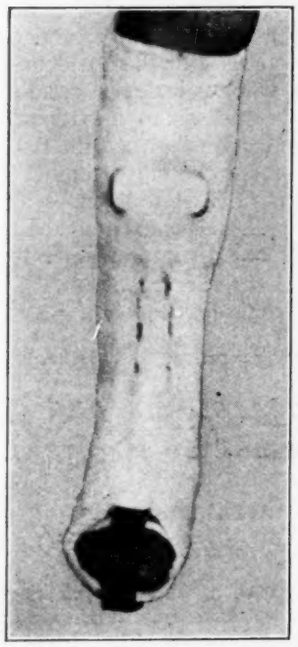

Fig. 2.—Front view of cast with walking iron applied.

This type iron has been used for twelve patients with fracture dislocation at the ankle, four patients with fractures of the tibia or both bones of the leg and two patients with fractures of the femur. The two patients with fracture of the femur and two of the patients with fractures of the leg bones had skeletal fixation by Steinmann pins incorporated in the unpadded plaster cast.

The advantages of this walking iron are that:

1. It permits a rocking motion of the foot and leg which closely simulates the normal gait.
2. The patient does not tend to twist or rotate the leg externally with each step as when the stirrup type iron is used.
3. The patient is able to move faster and with more comfort.
4. All the plaster on the foot is protected by the iron and hence does not break or wear out with walking.

The disadvantages are that:

1. The iron must be made after an individual pattern.
2. The expense is increased.
3. There may be some delay in applying the iron.

However, the iron can be made by almost any welding or blacksmith shop and in a short time. It has been my custom to wait from twelve to twenty-four hours after applying the cast to bind on the walking iron, to avoid denting the soft plaster in applying the iron.

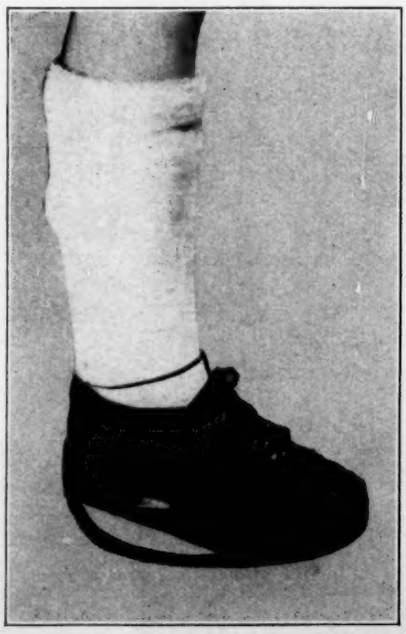

Fig. 3.—Lateral view showing a protective leather boot, which laces over the dorsum of the foot and also behind the heel. Note the curve of the iron from heel to toe.

A walking iron should be used only on unpadded plaster casts. No one should attempt to apply it unless he is thoroughly familiar with the technic of application and with the inherent dangers of the unpadded plaster cast. This subject has been well covered by Boehler [2] and by Griswold.[3]

2. Boehler, Lorenz: The Treatment of Fractures, ed. 4, English translation by Ernest W. Hey Groves, Baltimore, William Wood & Co., 1935, p. 63.

3. Griswold, R. A.: Nonpadded Plaster Cast for Lower Extremity, Am. J. Surg. **32**: 247-257 (May) 1936.

GONORRHEAL WOUND INFECTION FOLLOWING SIMPLE APPENDECTOMY

S. J. SULLIVAN, M.D., CHICAGO

Because of renewed general interest in venereal infections and the exceptional rarity of reported venereal wound infections, I am offering this report. An examination of the literature does not reveal a single case of a pure gonorrheal infection of an abdominal incision. Many cases of skin manifestations of gonorrhea have been reported, but living gonococci in the fatty tissues are undoubtedly rare.

REPORT OF CASE

A married woman, aged 44, the mother of three grown children, was seen early in the morning of Sept. 15, 1937, with all the typical symptoms and signs of an acute appendicitis. She was hospitalized at once and a count of 20,700 white blood cells, of which 97 per cent were polymorphonuclears, was obtained. Immediate operation was agreed on and the patient was prepared. Owing to the typical history and physical signs of acute appendicitis and a negative bimanual vaginal examination, a right rectus incision was made. When the peritoneum was opened about a drachm (4 cc.) of grayish serous fluid escaped. The appendix was brought into the wound and substantiated the preoperative diagnosis. It was removed with ease, and the stump was inverted. The laboratory reported an acute suppurative appendicitis.

Exploration of the abdominal cavity revealed light adhesions in the region of the gallbladder. These were freed blindly. The uterus was normal and the tubes were only slightly inflamed and not enlarged. Neither was stripped down for pus. The ileum, however, was examined carefully for 8 or 10 feet and presented many small petechial hemorrhagic areas the size of a pinhead. There were none of these on the appendix. This unusual finding prompted me to take a culture on blood agar medium. The wound was then closed in layers and without drainage. Saline solution was given subcutaneously throughout the operation.

Because of the hemorrhagic ileum and the possibility of a hemolytic streptococcus infection, an order was given for 25 cc. of prontosil [1] to be administered at once when the patient left the operating room, to be repeated in eight hours. However, the culture taken at operation later proved to be negative.

For the next three days the patient was quite uncomfortable with nausea, vomiting and generalized pain in the abdomen, and it was necessary to use the Levine apparatus, intravenous dextrose and several doses of narcotics. During this time, however, the white count fell from 20,700 before operation to 11,250 on the following day, 10,500 on the second and 9,500 on the third postoperative day.

The wound was examined on the fifth day but did not appear to be healing properly, although there was no discharge on the dressing. On the seventh day the patient was feeling very well and had an excellent appetite, eating a general selective diet. The sutures were then removed, and before butterfly adhesive strips were applied the wound started to open and discharge a clear grayish serous fluid. A smear was made of this fluid and was reported to be gram-negative intracellular diplococci with the outline of gonococci.

The following day a culture was taken on ascitic medium; it showed no growth, but four more direct smears all revealed gram-negative diplococci. On the ninth day another culture on ascitic medium showed an abundant growth of definite gonococci which had lived and grown in the fatty tissues between the skin and the anterior rectus muscle fascia. The wound was left tightly strapped with adhesive strips and the patient left the hospital on the fourteenth day. On the eighteenth day the adhesive strips were removed. The wound had healed perfectly. The patient was up and about the house. Antigonorrheal treatment is now in progress.

When the patient left the hospital a true history revealed that the patient's husband had been exposed to a venereal infection

Read before the staff of the Jackson Park Hospital.

1. Prontosil is the disodium salt of 4-sulfamido-phenyl-2'-azo-7'-acetyl-amino-1'-hydroxynaphthalene-3', 6' disulfonic acid.

three days before she had intercourse with him, and on the day she entered the hospital he noticed that a discharge developed which proved to be gonorrhea. This was seven days after his exposure. Both the patient and her husband stated that there had been no previous venereal involvement, and serologic reactions were negative.

It is interesting to note the rapid spread of a gonococcic infection from the vagina to the peritoneum in four days; also to note petechial hemorrhagic areas produced undoubtedly by gonococci.

2630 East Seventy-Fifth Street.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING MINUTES AND APPRECIATION.

H. A. CARTER, Secretary.

ABSTRACT OF MINUTES, THIRTEENTH ANNUAL MEETING, COUNCIL ON PHYSICAL THERAPY, JAN. 14-15, 1938

The Council on Physical Therapy held its annual meeting Jan. 14 and 15, 1938, at the headquarters of the American Medical Association in Chicago. Members who were present included Drs. J. S. Coulter, A. U. Desjardins, H. T. Karsner, F. H. Krusen, H. E. Mock, F. R. Ober, Ralph Pemberton, H. B. Williams, Olin West, Morris Fishbein and Mr. Carter. Drs. W. W. Coblentz, F. D. Dickson and W. E. Garrey were unable to attend the meeting.

Dr. Mock was reelected chairman and Dr. W. E. Garrey vice chairman. During the past year Dr. George C. Andrews resigned because he was obliged to curtail his activities. Since the annual meeting the Board of Trustees has appointed Dr. Anthony C. Cipollaro to fill the place made vacant by Dr. Andrews' resignation.

COMMITTEE ON RESEARCH

Five individuals in the course of the year, who presented problems of merit, were awarded grants in aid of research. A number of articles were published in this period by past recipients of similar grants.

In reviewing the status of ultraviolet therapy, the Council recommended careful study to establish the exact role ultraviolet radiation plays in antirachitic activity and bactericidal action. The problem of comparing the antirachitic effect of ultraviolet radiation with that produced by drugs and fortified foods of known vitamin D unitage (or potency) was given consideration.

AUDIOMETERS AND HEARING AIDS

One accomplishment of the Council in the course of the past year was reported by the chairman of the Consultants on Audiometers and Hearing Aids[1] of the Council on Physical Therapy. Tentative Minimum Requirements for Acceptable Audiometers have been established, adopted and published. The hope was expressed that a definite advance will occur in the fitting of hearing aids by utilizing the auditory chart readings. A report was made on a joint meeting of the Consultants on Audiometers and Hearing Aids and representatives of leading manufacturers of audiometers and hearing aid equipment. At this meeting many problems were ironed out and the cooperation led to the establishment of minimum requirements for acceptable audiometers. In reaching this solution, the American Standards Association cooperated. Representatives of the Council were sent to the Bureau of Standards in an effort to call forcibly to the attention of those interested in sound the urgent necessity for adopting an artificial ear for standardization of both audiometers and hearing aids. The consultants expressed the hope that in the future hearing aids may be prescribed as accurately for individual hearing defects as eye glasses are now prescribed for the eye defects. It was pointed out, however, that this achievement is still far from being realized.

1. Drs. George M. Coates, Lee W. Dean, E. P. Fowler, Austin A. Hayden, Isaac H. Jones, Douglas Macfarlan, Horace Newhart, Burt R. Shurly and Willliam P. Wherry.

SURVEY OF LITERATURE

The Council voted that a plan be developed for presenting an annual survey of the literature on physical therapeutic subjects. This would entail abstracting current literature, limiting it to English publications.

ARTIFICIAL LIMBS

The Council voted to include artificial limbs in its list of devices eligible for consideration. An attempt will be made to establish standards in this field. A meeting is contemplated for the representatives of manufacturers of artificial limbs and consultants appointed by the Council. It was suggested that this meeting might well be conducted much like the joint meeting between the representatives of manufacturers of audiometers and hearing aids and the Consultants on Otology (cooperating with the Council).

ROENTGEN-RAY APPARATUS

Consideration of roentgen-ray apparatus was discussed at the meeting. The Council voted that a survey be made among groups interested in this field to determine a suitable approach and procedure for investigating such apparatus.

LOW VOLTAGE MACHINES

It was voted that the Council proceed with an investigation of low voltage machines, basing its decision on the contents of the adopted article "The Interrupted Low Frequency and Constant Electric Current in Medicine."

HIGH FREQUENCY ELECTRIC CURRENT

A method is being sought for testing the efficiency of short wave diathermy machines to take the place of the surgical procedure now employed; i. e., insertion of thermocouples into the living human thigh to measure the temperature rise. Several processes were suggested: for example, the calorimeter, the photoelectric wattmeter and variations of these two. However, objections were raised against them and it was decided to investigate the problem further and attempt to devise a substitute method. It was pointed out that animals cannot serve as suitable test subjects for the thermocouple experiments because dosage depends on the expressed tolerance of the patient. At present there is no objective way of determining dosage with short wave units.

After careful consideration the Council voted to reaffirm its previous stand with regard to fever therapy—that manufacturers of short wave diathermy equipment wishing to promote their units for hyperpyrexia are expected to submit for consideration and acceptance the accessory equipment employed for maintaining fever temperature.

RADIO COMMUNICATION

Interference with radio communications by short wave diathermy units came up for consideration. The Council is of the opinion that restrictions of diathermy equipment to certain selected wavelengths would involve a serious handicap to research and practice in the therapeutic field. The Council believed that, if certain wavelengths were reserved for medical purposes only, the privilege of screening and filtering their installations should also be given to users of short wave equipment, not on the reserved frequencies. The entire field of short wave diathermy has not been completely explored and it would be a serious drawback to restrict physicians to selected and specific wavelengths.

PUBLICATIONS

Since the supply of the second edition of the Handbook of Physical Therapy (5,000 copies) is exhausted, the Council voted to go forward with the revision of the entire book and have a third edition ready for distribution by June if possible. The Council also voted to revise the booklet "Apparatus Accepted by the Council on Physical Therapy." This booklet will be ready shortly.

EDUCATIONAL ACTIVITIES

One of the most important educational features of the Council on Physical Therapy is the publication from time to time of reports on apparatus. However, there was a feeling among the members that the Council has identified itself too prominently with the consideration of apparatus and has placed too little emphasis on the practice of physical therapy not associated with machines and appliances. The time has come, in the opinion of the Council, to stress more and more the value of simple physical measures used in conjunction with medicine and surgery. It was the members' opinion that a long range policy might well be formulated and information of value made available to schools of medicine and the practicing physician. Although many universities have established physical therapy departments and are offering courses in physical therapeutics to the undergraduate students, it was felt that many more universities might well follow the same course. One of the best ways to establish a course in physical therapy in a medical curriculum is to have one physician placed in charge of the department and make him responsible for the instruction in the medical school. Some schools have selected young physicians from their ranks and sent them away for special training. These men returned later and were put in charge of developing physical therapy in their particular schools and connected hospitals.

The practicing profession is best reached through exhibits, films, publications, and lectures given by specialists in physical therapy. Just now two new films are being prepared, "Occupational Therapy" and "Aids in Muscle Training," for loan to the medical profession. The Council recommended publication of a number of reports dealing with definite results achieved by means of physical therapy; also preparation of articles to be published in magazines appealing to the layman. An exhibit was suggested for the American Medical Association meeting in San Francisco next June which will indicate, in a graphic way, to the medical profession, hospital directors and deans of medical schools what is being done in physical therapy.

The Consultants on Education [2] have been instrumental in promoting sound physical therapy in their respective communities by (1) arranging programs for state, county and other medical meetings, (2) holding clinics on various applications of physical therapy and (3) advising on educational matters, both graduate and undergraduate.

COMMITTEE ON STANDARDIZATION OF INSTRUMENTS AND DRUGS

The Committee on Standardization of Instruments and Drugs [3] of the American Medical Association was extended a vote of thanks for its splendid work in furthering the Council's interests.

AN APPRECIATION

The Council on Physical Therapy is very grateful to the following consultants who have given their time and effort freely toward furthering the work of the Council, both in the investigation of apparatus and in advising on other problems:

Drs. Fred L. Adair, Francis Heed Adler, M. Herbert Barker, William Bierman, Simon Benson, Walter Boothby, Joseph Brennemann, C. C. Bunch, George M. Coates, L. F. Curtiss, Alex Day, L. W. Dean, Géza de Takáts, F. H. Ewerhardt, Bernard Fantus, Samuel Feinberg, George K. Fenn, E. P. Fowler, Jonas Friedenwald, Sanford Gifford, Harry Goldblatt, F. B. Gordon, Henry Hartig, Austin A. Hayden, Allan Hemingway, J. S. Hibben, Isaac H. Jones, Louis Katz, Disraeli Kobak, A. J. Kotkis, Richard Kovacs, Henry Laurens, Franklin P. Lowry, Douglas Macfarlan, George Miller MacKee, John MacNie, Albert Miller, C. O. Molander, J. L. Myers, Tell Nelson, Horace Newhart, E. A. Oliver, S. L. Osborne, George Pfahler, Scott Reger, William Schmidt, B. R. Shurly, E. M. Smith Jr., K. W. Stenstrom, Ivan B. Taylor, Clifford B. Walker, Grant E. Ward, Ralph Waters, Francis Carter Wood and William P. Wherry.

2. Drs. Richard B. Dillehunt, Bernard Fantus, A. J. Kotkis, Richard Kovacs, Franklin P. Lowry and William Schmidt.
3. Drs. Sanford Gifford (chairman), Francis Heed Adler, Jonas Friedenwald, John MacNie and Clifford Walker.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary.

STAPHYLOCOCCUS TOXOID (See New and Nonofficial Remedies, 1937, p. 405).

Parke, Davis & Co., Detroit.

Staphylococcus Toxoid-P. D. & Co.—A detoxified staphylococcus toxin prepared by treatment of the toxin with a 0.3 per cent formaldehyde solution at 37 C. The detoxification procedure is carried to such a degree that the first strength product will stimulate the production of 2½ international units per cubic centimeter of staphylococcus antitoxin in the blood of rabbits treated according to the method approved by the National Institute of Health. The second strength staphylococcus toxoid will stimulate the production of 5 international units per cubic centimeter of staphylococcus antitoxin in the blood of rabbits treated in the same way. The material is preserved with 0.01 per cent of merthiolate (sodium ethylmercuri thiosalicylate) and the usual sterility tests required by the National Institute of Health are made. Staphylococcus toxoid is tested for dermonecrotic and lethal innocuity according to methods outlined by the National Institute of Health. Each of the two strengths is marketed in 5 cc. rubber diaphragm stoppered bottles.

Dosage.—The initial dose should range from 0.1 to 0.2 cc. (preferably the smaller dose) of the *first strength product*. Subsequent doses should be increased very gradually at intervals of from three to seven days, depending on the local reaction and systemic response of the patient. After treatment has been increased to 1 cc. of the first strength, the *second strength product* may be used, starting with a 0.1 to 0.2 cc. dose. Injections are made subcutaneously.

DILAUDID HYDROCHLORIDE (See New and Nonofficial Remedies, 1937, p. 305).

The following dosage forms have been accepted:

Hypodermic Tablets Dilaudid Hydrochloride, 1 mg. (1/64 grain).
Hypodermic Tablets Dilaudid Hydrochloride, 1.25 mg. (1/48 grain).

VIOSTEROL IN OIL (See New and Nonofficial Remedies, 1937, p. 473).

I. V. C. Viosterol (A. R. P. I. Process) in Oil.—A brand of viosterol in oil-N. N. R.

Manufactured by the American Research Products, Inc., a subsidiary of General Mills, Inc., Minneapolis. (International Vitamin Corporation, Inc., New York, distributor.) U. S. patent applied for. U. S. trademark 314,818.

I. V. C. viosterol (A. R. P. I. Process) in oil is prepared by the activation of purified ergosterol by low velocity electrons. The activated ergosterol is refined and dissolved in vegetable oil. The final product, when assayed according to the U. S. P. method, has not less than the vitamin D potency of viosterol in oil-N. N. R.

Council on Foods

THE COUNCIL ON FOODS HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.

FRANKLIN C. BING, Secretary.

VEGETIZED MACARONI NOT ELIGIBLE FOR LIST OF ACCEPTED FOODS

Vegetized Macaroni, made from a mixture of flour, water and powdered vegetables, was submitted by the Golden Gate Macaroni Company, Incorporated, San Francisco, for consideration by the Council on Foods. The firm was advised that it would be necessary to provide information relative to the preparation and composition of the dried vegetables used in the product, their freedom from spray residues, and so on, before consideration could proceed. The company expressed its willingness to comply with this requirement of the Council. Later the firm informed the Council that it would be impossible to provide the desired information because the Burbank Corporation, which produced the powdered vegetables, was unwilling to disclose any facts regarding the preparation of its product. The Council is of the opinion that the public deserves to know the ingredients of the foods it purchases. There are no sound arguments justifying secrecy about the composition of foods. In view of this policy of the Council, Golden Gate Vegetized Macaroni is being listed among the foods not eligible for acceptance.

MEDICAL LICENSURE STATISTICS FOR 1937

ANNUAL PRESENTATION OF LICENSURE STATISTICS BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS OF THE AMERICAN MEDICAL ASSOCIATION

For the thirty-sixth consecutive year the Council on Medical Education and Hospitals presents statistics of medical licensure. The report covers the year 1937 and deals with statistics regarding (*a*) medical licensing boards of the United States, the District of Columbia, the territories and the possessions of the United States, (*b*) boards of examiners in the basic sciences and (*c*) the National Board of Medical Examiners.

Official reports have been contributed by the medical licensing boards of all states, the District of Columbia, Alaska, the Canal Zone, Hawaii, Puerto Rico and the Virgin Islands; the homeopathic boards of Arkansas, Connecticut, Delaware, Louisiana and Maryland; the eclectic examining board in Arkansas; the twelve basic science boards in operation (Arizona, Arkansas, Colorado, Connecticut, District of Columbia, Iowa, Minnesota, Nebraska, Oklahoma, Oregon, Washington and Wisconsin) and the National Board of Medical Examiners. The homeopathic boards of Arkansas and Louisiana did not license any one during the year. Likewise no physicians were licensed in the Canal Zone.

The cooperation of the officers of the boards in supplying complete reports has made possible this annual compilation.

Reports of all examinations and those licensed by endorsement of credentials are carefully compared with the lists of graduates furnished by medical school officials, so that errors in names of candidates, the medical school or the years of graduation are promptly corrected. In the occasional instance in which the applicant, according to the records, has not graduated or there is a record of irregularity, the state board is promptly notified. Credentials of physicians coming from abroad are verified by direct correspondence with the foreign medical school. The statements regarding the medical education and licensure therefore of all physicians are accurate.

The data were also entered in the biographic file of physicians and others maintained by the Directory Department of the American Medical Association, thus serving a dual purpose. About thirty licensing boards obtain from the American Medical Association verification of biographic data and other claims before granting a license or permission to take the licensing examination. This service is available to all licensing boards.

The tables referring to medical licensing board results include figures regarding the number of candidates for medical licensure in 1937, the number licensed and the number added to the profession.

LICENTIATES

The first table contains figures on the number of licenses issued in the various states, territories and possessions during the year. There were 9,793 licenses issued, 6,615 on the basis of examination and 3,178 by endorsement of credentials. In several states (table 12) the internship is a requisite for practice, but a physician is permitted to take the examination and if successful his license is withheld until completion of his internship. Licenses are also withheld for lack of citizenship or minor technicalities. The figures, therefore, for those licensed after examination include many who were examined in 1936 and even a few in previous years. New York issued the largest number of licenses, 1,655; California issued 616, Illinois 607 and Pennsylvania 597. A comparison with similar figures for 1935 and 1936 indicates marked increases in these states as well as many others. The states just named are the only ones which registered more than 500. Five states licensed between 300 and 500, four between 200 and 300, and fourteen between 100 and 200. Twenty-one states, the District of Columbia, Alaska, Hawaii, Puerto Rico and the Virgin Islands licensed less than 100. Candidates were licensed after examination in every state, the lowest being two in New Mexico and Wyoming. Alaska and Virgin Islands licensed none by examination. Florida grants licenses only on the basis of examination. Massachusetts and Rhode Island have no reciprocity privileges but endorse diplomates of the

(CONTINUED ON PAGE 1348)

TABLE 1.—*Licentiates—1937*

	Licensed on Basis of		
	Examination	Reciprocity and Endorsement	Total
Alabama	26	53	79
Arizona	14	40	54
Arkansas	45	23	68
California	348	268	616
Colorado	76	42	118
Connecticut	72	74	146
Delaware	14	7	21
District of Columbia	41	46	87
Florida	164	..	164
Georgia	83	38	121
Idaho	21	29	50
Illinois	488	119	607
Indiana	120	57	177
Iowa	99	28	127
Kansas	82	23	105
Kentucky	81	48	129
Louisiana	144	23	167
Maine	58	15	73
Maryland	211	46	257
Massachusetts	301	57	358
Michigan	276	188	464
Minnesota	219	25	244
Mississippi	18	25	43
Missouri	180	86	266
Montana	4	25	29
Nebraska	79	17	96
Nevada	5	12	17
New Hampshire	17	41	58
New Jersey	250	140	390
New Mexico	2	39	41
New York	1,069	586	1,655
North Carolina	82	63	145
North Dakota	13	9	22
Ohio	320	140	460
Oklahoma	65	31	96
Oregon	58	22	80
Pennsylvania	527	70	597
Rhode Island	39	13	52
South Carolina	46	21	67
South Dakota	17	4	21
Tennessee	199	28	227
Texas	183	243	426
Utah	10	27	37
Vermont	25	20	45
Virginia	148	45	193
Washington	56	66	122
West Virginia	60	54	114
Wisconsin	118	55	173
Wyoming	2	26	28
U. S. territories and possessions*	40	21	61
Totals	6,615	3,178	9,793
Totals for 1936	6,271	2,747	9,018
Totals for 1935	5,717	2,193	7,910

* Alaska, Hawaii, Puerto Rico, Virgin Islands.

Marginal Number	SCHOOL	1 Alabama P	F	2 Arizona P	F	3 Arkansas P	F	4 California P	F	5 Colorado P	F	6 Connecticut P	F	7 Delaware P	F	8 Dist. Columbia P	F	9 Florida P	F	10 Georgia P	F	11 Idaho P	F	12 Illinois P	F	13 Indiana P	F	14 Iowa P	F	15 Kansas P	F	16 Kentucky P	F	17 Louisiana P	F	18 Maine P	F	19 Maryland P	F	20 Massachusetts P	F	21 Michigan P	F	22 Minnesota P	F	Marginal Number
	ARKANSAS																																													
1	University of Arkansas School of Medicine			1	0	45	0	5	1									3	1	10														1	0									1	0	1
	CALIFORNIA																																													
2	College of Medical Evangelists			1	0			43	2									0	2			1	0	1	0	2	0													2	0					
3	Stanford University School of Medicine							43	3																															1	0	1	0	1	0	1
4	University of California Medical School							47	0													1	0																					1	0	1
5	University of Southern California Sch. of Med.							44	0																																			1	0	1
	COLORADO																																													
6	University of Colorado School of Medicine			1	0			1	0	41	0			1	0																									1	0			2	0	6
	CONNECTICUT																																													
7	Yale University School of Medicine							2	0			4	0	2	0	1	0	0	1																					1	0	1	0			7
	DISTRICT OF COLUMBIA																																													
8	George Washington University School of Med.	1	0					3	0			1	0			16	0			1	0	1	0	2	0			1	0			1	0			2	0	4	0	3	0	1	0	10	8
9	Georgetown University School of Medicine							2	0	1	0	3	2			9	0	5	2																			2	0	2	0	4	1	1	0	10	9
10	Howard University College of Medicine															3	0							2	0									1	0			1	2							10
	GEORGIA																																													
11	Emory University School of Medicine	2	0															24	2	43	0													1	0					0	1					11
12	University of Georgia School of Medicine																	12	0	32	0																									12
	ILLINOIS																																													
13	Loyola University School of Medicine							6	0									3	3					70	0	4	0			1	0									6	0					13
14	Northwestern University Medical School			2	0			11	0	3	0							1	0	1	0	1	0	65	0	3	0	2	0	2	0							1	0	2	0	9	0	10	0	14
15	University of Chicago, Rush Medical College	5	0	1	0			19	3	2	0					1	0	7	0	1	0	5	0	65	0	3	0							2	0	1	0			2	0	6	0	6	0	15
16	University of Chicago, The School of Medicine of the Division of the Biological Sciences							6	0									2	0			1	0	9	0	1	0			1	0							1	0	1	0	1	0	2	0	16
17	University of Illinois College of Medicine	1	0	0	1			4	0	1	0			1	0	1	0	9	3			1	0	124	0	1	0			1	0			1	1					1	0	1	0	3	0	17
	INDIANA																																													
18	Indiana University School of Medicine							2	0																	102	0															4	0			1	0	18
	IOWA																																													
19	State University of Iowa College of Medicine							4	0																			79	0											2	0			1	0	19
	KANSAS																																													
20	University of Kansas School of Medicine							1	0							1	0															68	0							1	0			2	0	20
	KENTUCKY																																													
21	University of Louisville School of Medicine																	3	0													1	0	69	1											21
	LOUISIANA																																													
22	Louisiana State University Medical Center							1	0									3	0			1	0											60	0											22
23	Tulane University of Louisiana Sch. of Med.	4	0	1	0	1	0			2	0			1	0	11	1																	90	0					1	0			5	0	23
	MARYLAND																																													
24	Johns Hopkins University School of Medicine					1	0	3	0			2	0					2	0					1	0													43	1	3	0	1	0	4	0	24
25	University of Maryland School of Medicine and College of Physicians and Surgeons											3	0	1	0	1	0	1	1																	90	0	0	1					25
	MASSACHUSETTS																																													
26	Boston University School of Medicine											2	1															1	0							9	0	1	0	22	5	1	0	38
27	Harvard University Medical School	1	0					1	0			2	0	0	1			1	0	1	0	1	0	2	0	1	0	1	0							8	0	4	0	23	0	6	0	7	0	37
28	Tufts College Medical School							0	1			12	3					1	1																	16	0			62	12	1	0			28
	MICHIGAN																																												
29	University of Michigan Medical School							8	0	1	0					1	0	1	1					2	0													2	0	4	0	78	0	1	0	29
30	Wayne University College of Medicine							2	1															1	0																	72	0	1	0	30
	MINNESOTA																																												
31	University of Minnesota Medical School							1	0									3	0					3	0	1	0							1	0					1	0	4	0	120	0	31
	MISSOURI																																												
32	St. Louis University School of Medicine							4	0			4	1					2	1					2	0									2	0					0	1			1	0	32
33	Washington University School of Medicine	4	0					6	0	2	0							3	1																			1	0			1	0			33
	NEBRASKA																																												
34	Creighton University School of Medicine			1	1			12	2			0	2											2	0	1	0	4	0	3	0									1	0	1	0	34
35	University of Nebraska College of Medicine							4	0																					1	0									2	0	4	0	35
	NEW YORK																																													
36	Albany Medical College																																													36
37	Columbia University Coll. of Phys. and Surgs.											2	2					1	2																	2	0			3	0			1	0	37
38	Cornell University Medical College	1	0					3	0			1	0					1	0	1	0			1	0													1	0	1	0					38
39	Long Island College of Medicine											2	0					2	1															1	0					1	0					39
40	New York Medical College and Flower Hospital											1	0			1	0																			1	0			0	1					40
41	New York University College of Medicine	1	0									2	0					4	1	1	0			1	0					1	0							1	0	1	0					41
42	Syracuse University College of Medicine															1	0	1	0					1	0																			3	0	42
43	University of Buffalo School of Medicine							1	0															1	0																					43
44	University of Rochester School of Medicine							2	0			1	0									1	0																					3	0	44
	NORTH CAROLINA																																													
45	Duke University School of Medicine							1	0									2	0																			1	0			1	0	4	0	45
	OHIO																																													
46	Ohio State University College of Medicine							1	0					1	0			1	2																									2	0	46
47	University of Cincinnati College of Medicine							1	0									4	1															5	0									2	0	47
48	Western Reserve University School of Medicine			1	0													1	0																					2	0					48
	OKLAHOMA																																													
49	University of Oklahoma School of Medicine			1	0			6	0	1	0																							1	0									49
	OREGON																																													
50	University of Oregon Medical School							3	0											2	0	2	0													2	0					1	0	1	0	50
	PENNSYLVANIA																																													
51	Hahnemann Medical Coll. and Hosp. of Phila.											7	0	4	0			1	1					1	0											1	0	16	0	2	1					51
52	Jefferson Medical College of Philadelphia							4	0			5	1	2	0			4	2																	2	0	3	0	1	0					52
53	Temple University School of Medicine											1	0	1	1			2	0																	1	0			1	0	1	0			53
54	University of Pennsylvania School of Medicine	2	0					3	0			1	0	1	0	3	0	4	1			1	0									1	0			1	0	2	0	1	0			1	0	54
55	University of Pittsburgh School of Medicine																	2	1																					1	0					55
56	Woman's Medical College of Pennsylvania							1	0									1	0					1	0									2	0			1	0	0	1					56
	SOUTH CAROLINA																																												
57	Medical College of the State of South Carolina																																												57
	TENNESSEE																																													
58	Meharry Medical College																	1	0					2	0									3	0											58
59	University of Tennessee College of Medicine	1	0															7	1															1	0			1	0							59
60	Vanderbilt University School of Medicine							0	1									5	1															1	0											60
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22																							

P = Passed; F = Failed.

Marginal Number	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	U. S. Territories and Possessions*	Totals	Examined—Passed	Examined—Failed	Percentage—Failed	No. Boards Examined by	Marginal Number
	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F						
1	1 0						1 0		6 3			1 0												1 0 1 0					73	68	5	6.8	13	1
2							1 0			1 0				7 0						1 0				2 0					66	62	4	6.1	12	2
3																								1 0					50	47	3	6.0	5	3
4									2 0																				51	51	0	0.0	4	4
5																													45	45	0	0.0	2	5
6									2 0			1 0				1 0					1 0			2 0					54	54	0	0.0	11	6
7															2 0													1 0	15	14	1	6.7	9	7
8						3 0			9 3			4 0		1 0 6 0						1 0		2 0		1 0 1 0				1 0	70	67	3	4.3	24	8
9			1 0	15 0					10 4			2 0			28 0 3 2					1 0				1 0 2 0		1 0 1 0			106	95	11	10.4	21	9
10	4 0					1 0 3 0			3 3	3 0					5 0				16 0			11 0		1 0					59	54	5	8.5	13	10
11						1 0			1 0	12 0															1 0				88	85	3	3.4	9	11
12									0 1						1 1														47	45	2	4.3	4	12
13						1 0			4 4	1 0 7 0					4 0													1 1	116	108	8	6.9	13	13
14	1 0 3 0		1 0						4 1	5 0 2 0	2 0 2 0			2 0 1 0		3 1				4 0				8 0 3 0	4 0			1 0	159	157	2	1.3	29	14
15	1 1 1 0		1 0	1 0					17 2	1 0 1 0	7 0			1 0 3 0	1 0	1 0				1 0				9 0	5 0				183	177	6	3.3	30	15
16	2 0								4 0			5 0		1 0										2 0	1 0				40	40	0	0.0	16	16
17	1 0					1 0			3 0											1 0				1 0					162	157	5	3.1	20	17
18																1 0								3 0		1 0			114	114	0	0.0	7	18
19																										1 0			87	87	0	0.0	5	19
20	3 0								1 0						1 0									2 0	1 0	1 0			82	82	0	0.0	11	20
21	2 0								5 1			1 0			1 0										4 0				88	86	2	2.3	8	21
22	5 0								1 0	1 0										1 0					1 0	1 0		1 0	76	76	0	0.0	11	22
23	7 0	1 0				1 0			2 0	1 0					1 0				1 0	3 0					1 0			1 0	139	138	1	0.7	19	23
24									3 0	1 0		1 0		2 0	2 0		1 0		1 0				1 0		1 0				74	73	1	1.4	18	24
25						7 0			10 0						11 0										3 0			1 0	130	128	2	1.5	11	25
26					1 0	1 0			5 1						1 0	3 1													55	47	8	14.5	11	26
27					3 0	3 0			16 1	5 0		7 0			6 0	3 0	1 0	1 0					1 0	2 0		1 0			110	108	2	1.8	27	27
28					2 0				7 6		1 0			1 0	1 0	6 2							1 0			1 0			137	112	25	18.2	14	28
29	1 0					1 0			8 1			1 0		7 0										2 0	1 0			2 0	123	121	2	1.6	17	29
30									1 0			1 0																	79	78	1	1.3	6	30
31	1 0 1 0					3 0			1 0	7 0					1 0		1 0			1 0			1 0 1 0		3 0				155	155	0	0.0	19	31
32	69 6				1 0	3 0			22 5	1 0				8 0 2 0			1 0	8 0											144	130	14	9.7	16	32
33	71 4					1 0			4 1											1 0			1 0				2 0		103	97	6	5.8	12	33
34	14 0					1 0			9 4					3 0 1 0			3 0						4 0		1 0		1 1	72	62	10	13.9	18	34
35	64 0								1 2		2 0			1 0 1 0			4 0						2 0			1 0 1 0			90	88	2	2.2	13	35
36									17 1						1 0														19	18	1	5.3	2	36
37		2 0	4 0						67 5			1 0			2 0								1 0				1 0		96	87	9	9	4.12	37
38		2 0							52 5					2 0 2 0								2 0		1 0		1 0			77	72	5	6.5	15	38
39		8 0							65 4					1 0 0 1		1 0													87	81	6	6.9	9	39
40		6 0							11 2			4 0											1 0						28	25	3	10.1	8	40
41	1 0	5 0							108 4				1 0	1 0 1 0										1 0					135	130	5	3.7	15	41
42									38 2						1 0													1 0	48	46	2	4.2	7	42
43	1 0	1 0							62 3					3 0															72	69	3	4.2	6	43
44		4 0							21 2	1 0		4 0											1 0						40	38	2	5.0	9	44
45		2 0							1 0	6 0		1 0		2 0										3 0					24	24	0	0.0	11	45
46											9 5 0			1 0										2 0				1 0	106	104	2	1.9	8	46
47											6 3 0			1 0										1 0				1 0	79	78	1	1.3	8	47
48											6 2 0			2 0									2 0	1 0				1 0	72	72	0	0.0	8	48
49													4 7 0	1 0 1 0		1 0													59	59	0	0.0	8	49
50													3 2 0							1 0				5 0		1 0			50	50	0	0.0	10	50
51						2 1 0			4 2			1 1 0			6 1 0	3 1													137	132	5	3.6	12	51
52	1 0																																	
53		1 0 1 8				0			8 1	8 0		8 0		1 0 9 8	0 4 0								3 0	1 0 6 0					177	173	4	2.3	19	52
54	3 0					1 4 0			6 2	11 0		3 0			9 3 1							1 0					1 0	140	136	4	2.9	13	53
55		7 0							3 2	7 0		2 0		1 0 8 0	1 1 0		1 0			1 0			3 0		1 0				141	136	5	3.5	25	54
56									1 0					6 1 0										2 0					70	69	1	1.4	6	55
57									10 1	1 0				1 0 1 2	0								1 0 1 0						34	32	2	5.9	12	56
58									2 3	8 0						4 2 1-													51	47	4	7.8	3	57
59	0 1																																	
60	7 0									1 0		1 0		1 0			3 2 0							1 1					44	42	2	4.5	9	58
61	1 0	1 0														1 0	1 0 4 0							1 0					124	123	1	0.8	8	59
62						1 0				4 0							4 5 0											1 0		61	59	2	3.3	9	60

*Hawaii, Puerto Rico.

Marginal Number	SCHOOL	1 Alabama P	F	2 Arizona P	F	3 Arkansas P	F	4 California P	F	5 Colorado P	F	6 Connecticut P	F	7 Delaware P	F	8 Dist. Columbia P	F	9 Florida P	F	10 Georgia P	F	11 Idaho P	F	12 Illinois P	F	13 Indiana P	F	14 Iowa P	F	15 Kansas P	F	16 Kentucky P	F	17 Louisiana P	F	18 Maine P	F	19 Maryland P	F	20 Massachusetts P	F	21 Michigan P	F	22 Minnesota P	F	Marginal Number
	TEXAS																																													
61	Baylor University College of Medicine	..	..	1	0	..	..	1	0	..	..	1	0	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	2	0	1	0	3	0	..	..	..	..	..	..	..	..	..	..	61
62	University of Texas School of Medicine	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	62
	VERMONT																																													
63	University of Vermont College of Medicine	..	..	..	..	..	..	..	..	..	..	5	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	0	..	..	63
	VIRGINIA																																													
64	Medical College of Virginia	..	..	..	..	..	..	..	..	..	..	2	1	..	..	..	..	2	0	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	0	..	..	1	0	64
65	University of Virginia Department of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	3	0	..	..	65
	WISCONSIN																																												
66	Marquette University School of Medicine	..	..	..	..	..	..	0	1	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	1	0	66
67	University of Wisconsin Medical School	..	..	1	0	..	..	4	0	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	4	0	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	1	0	67
	CANADA																																												
68	Dalhousie University Faculty of Medicine	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	1	0	68
69	Laval University Faculty of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	69
70	McGill University Faculty of Medicine	..	..	..	..	..	..	6	0	..	..	4	0	..	..	1	0	2	0	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	0	2	0	6	0	2	0	1	0	70
71	Queen's University Faculty of Medicine	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	1	1	..	..	..	..	..	..	2	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	3	0	71
72	University of Alberta Faculty of Medicine	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	1	0	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	72
73	University of Manitoba Faculty of Medicine	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	0	73
74	University of Montreal Faculty of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	1	0	..	..	74
75	University of Toronto Faculty of Medicine	..	..	..	..	..	..	2	0	..	..	1	0	..	..	..	..	0	1	..	..	..	..	..	..	3	0	1	0	..	..	..	..	..	..	..	..	1	0	1	0	1	0	2	0	2	0	75
76	University of Western Ontario Medical School	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	76
77	Foreign Medical Faculties	2	1	..	..	..	..	19	5	4	1	6	5	..	..	..	..	3	0	..	..	..	..	33	2	3	2	..	..	..	..	..	..	..	..	..	..	4	2	28	24	15	9	1	1	..	..	77
78	Extinct Medical Schools	1	0	..	..	..	..	2	0	..	..	..	..	..	..	..	..	2	2	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	1	0	..	..	1	0	78
79	Unapproved Schools and Undergraduates	..	..	2	0	1	0	..	..	19	2	1	2	..	..	..	..	2	0	..	..	..	..	82	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	114	186	..	..	..	..	79
80	Totals	27		16		48		369		79		101		16		41		202		83		20		493		125		88		82		82		174		60		236		520		212		2196		80
81	Totals—Examined—Passed	26		14		48		349		76		80		14		41		164		83		20		488		123		88		82		81		173		58		209		301		211		2198		81
82	Totals—Examined—Failed	1		2		0		20		3		21		2		0		38		0		0		5		2		0		0		1		1		2		27		219		1		02		82
83	Percentage Failed	3.7		12.5		0.0		5.4		3.8		20.8		12.5		0.0		18.8		0.0		0.0		1.0		1.6		0.0		0.0		1.2		0.6		3.3		11.4		42.1		0.5		0.0		83
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22		

P = Passed; F = Failed.

(CONTINUED FROM PAGE 1345)

National Board of Medical Examiners. The total number licensed, 9,793, was 775 more than in 1936 and 1,883 more than in 1935. Licensed on the basis of examination, the figure increased 344 over 1936 and those licensed without examination increased 431. This figure, however, does not represent 9,793 individuals, since several have been licensed in more than one state during the year. Nor does it represent additions to the medical profession at large, since the majority of the 3,178 licensed by endorsement, with the exception of those licensed in New York on the basis of foreign credentials, and many of the National Board diplomates have migrated from other states. Table 7 shows how many of those licensed were never before registered and therefore represent the number added to the medical profession.

TOTAL EXAMINED

Figures referring to those examined for medical licensure by individual states throughout the year, giving the number who passed and failed in each state, are included in table 2. There were 7,320 examined, of whom 6,589 passed and 731 failed, representing graduates from the sixty-seven approved four year medical schools in the United States and nine of the medical schools of Canada, eighty-seven faculties of medicine and five licensing corporations of other countries, ten medical schools now extinct, nine unapproved institutions and several osteopathic colleges. Two undergraduates were examined. Osteopaths granted the privilege to practice medicine, surgery or both by the medical board are included in these statistics eliminating, for instance, those osteopaths in California granted privileges as physicians and surgeons by the osteopathic board. There were 5,707 graduates of approved medical schools in the United States examined, of whom 3.7 per cent failed; 129 graduates of approved Canadian schools, 7.8 per cent of whom failed; 919 graduates of schools outside the United States and Canada, principally in Europe, with 30.8 per cent failures; 14 who graduated from schools now extinct with 21.4 per cent of failures, and 551 from unapproved and osteopathic schools and undergraduates, of whom 40.8 per cent failed. These 551 represented 190 graduates of osteopathic schools, of whom 113 passed and 77, 40.5 per cent, failed; 359 graduates of unapproved schools, of whom 213 passed and 146, 40.7 per cent, failed, and two undergraduates, both of whom failed. The latter were permitted to take the examination in Mississippi by special acts of the legislature. Graduates of osteopathic schools were examined in nine states—Colorado, Connecticut, Massachusetts, New Hampshire, New Jersey, Oregon, Texas, Wisconsin and Wyoming, while graduates of unapproved schools were examined in eleven states and Hawaii—Arizona, Arkansas, Florida, Illinois, Massachusetts, New Jersey, North Carolina, Ohio, Pennsylvania, South Dakota and Virginia. Of the 190 osteopaths, 71 were examined in New Jersey, 62 in Massachusetts and 26 in Texas. Of those graduates of other than recognized schools, Massachusetts examined 238, Illinois 85 and Ohio 23. Osteopaths in Colorado, Massachusetts, New Hampshire and New Jersey were examined in medicine and surgery and those in Connecticut, Oregon, Wisconsin and Wyoming in surgery only.

The United States territories and possessions refer to Hawaii and Puerto Rico.

The 7,320 examined do not represent individuals, since a candidate might take the examination in more than one state and would be counted in each state. This applies to those who pass or fail, or those who fail and later pass in one or more states, or pass in one state

Marginal Number	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50						
	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	U. S. Territories and Possessions*	Totals	Examined—Passed	Examined—Failed	Percentage—Failed	No. Boards Examined by	Marginal Number
	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F						
61													1 0							65 0						1 0			77	77	0	0.0	10	61
62															2 0					78 0									83	83	0	0.0	5	62
63									5 0							1 0						25 0							42	42	0	0.0	5	63
64	1 0						2 0		2 0	8 0					2 0							60 1		8 0	1 0		2 0	97	95	2	2.1	15	64
65															1 0							58 1		3 0				74	73	1	1.4	7	65
66						1 0	1 0		2 0			6 0			0 1									1 0		49 0			68	65	3	4.4	13	66
67	1 0								1 1			1 0		2 0												31 0			53	52	1	1.9	12	67
68							3 0		6 0			1 0															1 0	14	14	0	0.0	7	68
69						2 0	1 0																						4	4	0	0.0	3	69
70						1 0			10 5						1 0	1 0								2 0		1 0			51	46	5	9.8	16	70
71									3 1																	2 0			15	13	2	13.3	7	71
72	1 0																									1 0			6	6	0	0.0	6	72
73					1 0																								5	5	0	0.0	4	73
74							0 1		1 0																				4	3	1	25.0	4	74
75							1 0		3 1			1 0			1 0								1 0			1 0			24	22	2	8.3	16	75
76									2 0			1 0																	6	6	0	0.0	5	76
77	1 0	1 0	0	1		1 0	46	13	1 0	397	190			17	5			13	0	2 0		0 1	12	10		4 0	4 0		7 0		12	2	919	636	283	30.8	28	77
78								1	0 0	1																			1	0	14	11	3	21.4	10	78
79	0 2					4 0	53	19		2 0		23 0			1 0	1 0				17 9			2 0			1 0	0 1	1 0	551	326	225	40.8	20	79
80	24	180		5	79	5	17	283	2	1,360		82	13	352	49	58	532	45	47	19	208	200	10	26	150	56	61	118	3	43	7,320	.....	...	.....	..	80
81	22	168		4	79	5	17	250	2	1,069		82	13	347	49	58	528	38	46	17	207	181	10	26	148	56	60	118	2	39	.....	6,589	...	.....	..	81
82	2	12		1	0	0	0	33	0	291		0	0	5	0	0	4	7	1	2	1	19	0	0	2	0	1	0	1	4	.....	.....	731	.....	..	82
83	8.3	6.7		20.0	0.0	0.0	0.0	11.7	0.0	21.4		0.0	0.0	1.4	0.0	0.0	0.8	15.6	2.1	10.5	0.5	9.5	0.0	0.0	1.3	0.0	1.6	0.0	33.3	9.3	.....	.....	...	10.0	..	83
	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50						

*Hawaii, Puerto Rico.

and later within the same year fail elsewhere. However, if a physician fails more than once in a given state within the year he is counted in that state only once as a failure.

Three of the five homeopathic boards in existence, Connecticut, Delaware and Maryland, examined twenty-eight candidates, all of whom passed. The homeopathic boards of Arkansas and Louisiana did not examine any one during the year. The one eclectic board in existence (Arkansas) examined and passed one candidate.

The largest number of graduates of any one school examined was 183 from Rush Medical College, who were examined in thirty states. There were 177 graduates of Jefferson Medical College of Philadelphia examined in nineteen states. The next highest number of graduates of any one school was the University of Illinois College of Medicine, which had 162 graduates examined by twenty states. Tufts College Medical School and Boston University School of Medicine had the highest percentage of failures in the United States, 18.2 and 14.5, respectively. Graduates of Rush Medical College were examined in the most states, thirty. Northwestern University Medical School graduates were examined by twenty-nine states, Harvard University Medical School by twenty-seven, the University of Pennsylvania School of Medicine by twenty-five, George Washington University School of Medicine by twenty-four, Georgetown University School of Medicine by twenty-one and the University of Illinois College of Medicine by twenty. All other schools had their graduates examined in fewer than twenty states. From those statistics it might be inferred that these schools educate more nonresidents than do other schools. Graduates of the University of Southern California School of Medicine (forty-five) were examined by two states, one of which was California, which examined forty-four. Graduates of Albany Medical College (nineteen) were also examined in two states, eighteen in New York, where the school is located.

Canadian graduates took the test in twenty-three states and Puerto Rico. The greatest number, fifty-one, represented McGill University Faculty of Medicine, who were examined in sixteen states; twenty-four graduates of the University of Toronto Faculty of Medicine were examined also in sixteen states, while fourteen graduates of Dalhousie University Faculty of Medicine and six of the graduates of the University of Alberta Faculty of Medicine were examined in six states. The highest percentage of failures was 25, representing the University of Montreal Faculty of Medicine.

Sixteen medical schools had no failures before state licensing boards; namely, the Universities of California, Southern California, Colorado, School of Medicine of the Division of the Biological Sciences, Indiana, Iowa, Kansas, Louisiana, Minnesota, Duke, Western Reserve, Oklahoma, Oregon, Baylor, Texas and Vermont.

In 1936, 6,908 were examined, of whom 6,214 passed and 10.0 per cent failed, as compared with 7,320 examined in 1937, of whom 6,589 passed and 731, 10.0 per cent, failed. There were 412 more examined than in 1936, 375 more passed and the failures increased thirty-seven. Elsewhere are given figures representing actual licentiates and additions to the medical profession.

FAILURES

In table 3 are presented for each state the number granted licenses to practice medicine having a perfect record in medical license examinations, the number

(CONTINUED ON PAGE 1351)

TABLE 4.—*Credentials Presented by Physicians for Licensure by Reciprocity and Endorsement—1937*

Marginal Number	Total Licensed	Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	District of Columbia	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	U. S. Gov't Services	National Board of Medical Examiners	U. S. Terr. & Poss.*	Canadian & Foreign	Miscellaneous
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54
Alabama	53	..	..	..	..	..	..	..	1	..	5	..	2	3	..	..	2	6	..	1	..	1	1	4	1	..	..	..	..	..	..	1	1	..	1	..	..	2	..	2	..	15	1	..	..	2	..	..	2	..	..	1	..	..	..
Arizona	40	1	..	..	5	..	..	..	..	..	..	..	4	..	2	..	1	3	..	1	..	1	..	..	2	..	2	..	..	..	..	..	2	..	..	3	..	..	4	..	..	..	2	2	..	..	1	..	..	..	..	..	4	..	1	..
Arkansas	23	..	..	..	..	..	..	..	..	..	..	..	2	..	..	2	..	3	..	1	..	..	..	..	2	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	2	2	..	..	..	..	..	..	..	..	4	..	..	..
California	268	1	3	1	..	8	1	..	1	1	2	..	25	6	15	10	..	2	2	2	4	7	11	..	16	3	22	..	..	..	..	25	..	4	13	2	4	8	..	1	2	2	6	5	..	..	..	..	..	..	..	2	..	..	..
Colorado	42	..	..	3	..	..	..	..	1	..	..	..	4	..	2	3	2	..	..	2	..	1	2	..	2	..	6	..	..	..	..	1	..	..	2	..	..	1	..	..	..	..	..	..	..	3	..	..	1	22	25	2	..	..
Connecticut	74	..	1	..	..	..	..	..	..	..	..	..	4	..	1	1	1	..	1	2	3	2	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	2	2	1	..	..	..	..	1	1	2	4	..	..	..
Delaware	7	..	..	..	..	..	1	..	1	..	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	3	..	16	..	..	2	..	..	..	..	..	..	..	..	..	1	2	1	..	..	..	..	32	..	..	1
Dist. Columbia	46	..	..	..	2	..	..	..	..	..	1	..	2	..	2	1	..	2	..	1	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
Florida	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	2	..	..	2	1	..	3	..	..	..	..	..	..	..	..	..	..	..	..	8	..	..	..
Georgia	38	3	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Idaho	29	..	..	..	3	..	..	..	..	..	..	..	2	2	3	3	..	2	..	..	1	..	..	..	3	3	2	..	..	..	..	..	2	..	..	1	..	1	..	3	..	1	..	4	..	..	..	4	..	2	..	..	..	2	..	..	..
Illinois	119	1	..	1	7	1	..	..	1	..	..	..	..	3	4	4	1	..	..	6	..	6	5	..	28	..	3	..	..	1	..	..	..	..	3	..	..	4	..	..	..	1	2	..	..	..	..	..	..	..	..	..	1	..	..
Indiana	57	..	..	3	1	..	..	..	..	..	2	..	14	..	..	1	5	1	..	2	..	6	..	..	5	..	..	..	..	..	1	..	..	..	3	..	..	4	..	..	..	1	2	..	..	2	..	1	9	1	2	22	..	..	..
Iowa	28	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	..	..	5	..	..	..	..	..	..	..	..	..	2	..	..	3	..	..	..
Kansas	23	..	..	..	..	1	..	..	..	..	..	..	5	..	1	1	..	..	..	1	..	1	6	..	1	..	10	..	..	..	..	..	1	..	..	..	..	..	..	1	..	..	..	1	..	..	..	1	..	..	..	3	..	..	..
Kentucky	48	..	1	1	..	..	..	..	..	..	1	..	4	..	1	..	..	1	..	2	..	1	1	1	2	..	2	..	..	..	1	..	2	..	..	8	..	..	1	..	..	..	..	1	..	..	5	..	1	..	..	3	..	..	..
Louisiana	23	..	..	2	1	1	..	..	..	..	..	..	1	..	1	..	1	..	1	1	..	3	..	2	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	11	..	..	..	..	..	1	..	..	1	..	..	..
Maine	15	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	4	1	..	..	1	..	..	..	..	..	..	..	..	..
Maryland	46	..	..	..	2	1	..	..	4	..	1	..	2	..	..	1	..	1	..	..	..	1	..	..	1	..	..	..	1	1	..	..	..	..	1	..	..	4	..	..	..	..	..	..	2	..	..	..	..	..	..	3	..	..	..
Massachusetts	57	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..	1	..	..	3	..	2	..	..	..	1	4	..	2	..	2	1	..	1	3	1	1	..	..	..	..	10	..	..	..
Michigan	188	..	..	3	5	..	2	..	..	..	3	..	37	11	15	4	3	2	..	5	..	..	4	1	9	..	4	..	..	2	..	4	3	1	25	2	..	3	..	..	..	6	4	..	1	3	..	..	9	..	..	17	..	..	..
Minnesota	25	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	4	..	..	1	..	1	..	..	..	..	1	2	..	..	..	..	..	..	..	..	..	..	3	..	..	10	..	..	..
Mississippi	25	..	..	..	1	..	..	..	..	..	5	..	1	..	..	..	..	4	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Missouri	86	1	..	1	1	1	..	..	..	..	..	..	5	3	2	23	3	1	..	1	..	2	..	..	4	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	8	1	..	..	1	..	..	1	..	..	..	..	..	..
Montana	25	..	..	..	2	2	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	9	..	2	..	..	2	..	..	..	..	6	..	..	..	4	..	1	..	..	..	14	2	..	..	..	..	..	..	..	..	11	..	..	..
Nebraska	17	..	..	..	1	1	..	..	..	..	1	..	4	..	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	2	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..
Nevada	12	..	..	..	1	..	..	..	..	..	..	..	2	1	..	..	..	1	..	1	..	1	..	..	2	..	..	..	..	..	..	1	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
New Hampshire	39	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	2	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	2	..	..	..
New Jersey	180	..	..	1	1	1	..	..	2	..	..	..	1	..	..	..	..	..	1	..	8	1	1	..	1	..	..	..	..	..	..	6	..	..	..	..	..	1	..	..	..	..	..	6	..	..	..	..	..	..	9	..	4	..
New Mexico	39	1	..	1	2	3	..	..	..	..	1	..	8	..	..	..	..	3	..	1	..	3	..	..	1	..	1	..	..	..	..	1	..	..	6	..	..	12	..	..	..	2	3	..	1	1	..	..	..	..	21	..	..	..
New York	586	2	..	..	14	1	1	1	2	..	2	..	6	5	8	..	2	3	..	61	3	5	2	..	1	..	1	..	..	..	..	1	..	..	6	1	38	..	..	..	29	13	..	..	13	..	..	5	..	..	166	4	146	..
North Carolina	63	1	..	1	..	..	..	..	..	..	4	..	2	3	1	..	1	4	..	6	..	..	..	1	..	..	..	..	..	..	..	33	..	..	6	1	38	..	..	12	..	..	..	29	13	..	..	13	..	..	5	..	..	166	4	146	..
North Dakota	9	..	..	..	1	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	5	..	..	1	2	..	1	..	2	..	7	..	..	1	10	..	..	..	..	9	..	..	..
Ohio	140	..	..	..	2	3	..	..	2	..	2	1	9	3	6	2	6	1	..	3	..	16	1	..	24	..	1	..	1	2	..	8	1	1	..	2	..	6	..	..	1	3	2	..	..	4	..	6	1	..	..	5	..	..	..
Oklahoma	31	..	..	1	..	..	..	..	..	..	..	..	3	..	..	5	..	4	1	..	..	..	..	2	2	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	9	1	..	..	..	..	..	..	..	..	20	..	..	..
Oregon	22	..	1	..	2	..	..	..	..	..	..	..	1	1	..	1	..	..	..	..	..	2	2	..	1	..	2	..	..	..	..	3	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	1	..	..	..	2	..	..	..
Pennsylvania	70	..	..	..	2	..	1	..	1	..	1	..	3	..	1	..	..	..	..	2	..	3	1	..	1	..	2	..	..	..	..	7	..	4	1	..	4	..	..	..	..	1	..	..	..	3	..	..	..	..	2	..	..	..
Rhode Island	13	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	1	..	..	1	..	..	..	..	31	..	..	..
South Carolina	21	..	..	..	..	..	..	..	..	..	7	..	..	..	..	..	2	1	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	13	..	..	..
South Dakota	4	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..	..	..
Tennessee	28	..	..	..	1	..	1	..	..	..	4	..	2	..	2	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..	..	3	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..
Texas	171	..	1	15	4	1	..	..	..	..	..	..	14	4	6	4	4	35	..	8	1	2	6	2	10	..	8	..	..	..	2	..	10	3	1	5	6	2	1	1	..	12	..	..	2	..	1	1	..	..	6	..	..	..
Utah	27	..	1	..	2	1	..	..	..	1	..	..	3	1	1	..	3	3	..	1	..	1	..	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	1	..	..	..	..	..
Vermont	20	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	3	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..	..	..	1	..	..	..	1	1	..	..	..	..	2	1	..	..
Virginia	45	1	..	..	..	..	..	..	3	..	1	..	1	..	1	2	1	1	..	4	..	..	1	1	1	..	..	..	1	..	1	..	2	1	1	..	2	..	1	..	..	..	1	..	..	..	1	..	..	..	..	8	..	1	..
Washington	66	..	..	..	5	2	..	..	..	..	1	..	..	..	6	..	1	1	..	1	..	4	..	3	..	..	7	..	..	..	2	..	1	1	..	2	..	..	2	..	1	..	5	..	..	..	..	5	..	..	2	6	..	..	..
West Virginia	54	1	..	..	..	..	..	..	1	..	1	..	1	2	..	..	10	3	..	6	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	9	2	..	1	1	3	2	..	3	..	..	1	..	..	11	..	..	..
Wisconsin	53	..	..	..	..	1	..	..	..	..	..	..	17	1	3	..	1	..	..	..	..	8	7	..	2	..	2	..	..	..	..	4	..	..	1	1	1	2	..	..	..	2	..	..	..	6	..	..	1	..	..	6	..	..	..
Wyoming	22	..	..	..	..	2	..	..	..	..	..	..	3	..	3	2	..	..	..	..	..	1	1	..	3	..	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
U. S. Terr. and Possessions*	21	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	14	..	..	..
Totals	3,098	13	8	35	74	31	7	1	21	2	48	1	197	54	96	71	57	92	10	155	24	77	66	16	141	6	97	1	2	63	1	171	25	11	134	26	20	95	2	11	6	158	53	14	14	72	9	18	39	4	28	559	8	153	1
Marginal Number		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54

* Alaska, Hawaii, Puerto Rico, Virgin Islands.

(CONTINUED FROM PAGE 1349)

licensed after one failure and after two or more failures, these two groups being classified by indication whether the failure or failures have been in the state in which they are receiving a license or elsewhere.

Of the total number licensed by examination, 6,615, 190 failed after one examination in the state in which they were licensed in 1937 and 63 elsewhere, while 99 failed more than once in the state awarding the 1937 license and forty elsewhere, leaving 6,223 licensed without ever having failed a medical licensing examination.

In the computation of this table it was noted that five osteopaths were licensed in Massachusetts, of whom one failed fourteen and another ten times. Of the thirty-nine graduates of unapproved schools licensed in Massachusetts, two failed thirteen, four failed ten, three nine, two eight and two seven times each. An osteopath was examined four times in Connecticut; another in New Hampshire failed four times. Texas licensed an osteopath who failed the Delaware osteopathic examination. North Carolina also licensed a graduate of an unapproved school who had five failures.

Nineteen states and the District of Columbia licensed physicians who never failed a state board examination, while Massachusetts licensed 77 and New York 189 who previously failed. Licensure of candidates with failures occurred in twenty-nine states, but with the exception of Massachusetts and New York no state licensed more than ten.

REGISTRATION BY RECIPROCITY AND ENDORSEMENT

Table 4 records the number of physicians granted licenses to practice medicine and surgery without examination on presentation of satisfactory credentials. These individuals presented licenses from other states, Canada and foreign countries, the certificate of the National Board of Medical Examiners, one of the government services, or other credentials.

Definite reciprocal agreements exist in many of the states, but some will register licentiates who present credentials which correspond to those required by their respective states at the time such licenses were issued. The medical practice acts of many give the examining board the privilege of using its discretion in determining the acceptability of a candidate. The reciprocity and endorsement policies of the various states are presented in table 6. In addition there is also indicated whether licenses are granted to diplomates of the National Board of Medical Examiners or to retired officers of the government services. Specific requirements such as professional practice, basic science certificate and oral examination is recorded, as is also the fee demanded. Florida, Massachusetts and Rhode Island do not have reciprocal or endorsement arrangements with any state. Reciprocal relations were canceled in Idaho in 1937. Massachusetts and Rhode Island, however, will register diplomates of the National Board of Medical Examiners by endorsement. Those desiring licenses in Arizona, Arkansas, Colorado, Connecticut, District of Columbia, Iowa, Michigan, Minnesota, Nebraska, Oklahoma, Oregon, Washington and Wisconsin are required to obtain a certificate from the board of examiners in the basic sciences before being eligible for licensure. Other requirements or exemptions are mentioned in footnotes.

Referring to table 4, it will be noted that New York granted the greatest number of licenses by endorsement in 1937 (586), California was second with 268, Michigan third with 188, Texas fourth with 171, New Jersey and Ohio each licensed 140, and 119 were registered in Illinois. All other states licensed fewer than 100. The largest group representing the same type of credentials were the 559 diplomates of the National Board of Medical Examiners. More than 100 physicians from Illinois, Maryland, Missouri, New York, Ohio and Tennessee, respectively, were licensed in the various states and 153 candidates from Canada and foreign countries were likewise registered, 146 of the latter being so endorsed in New York. Only 171 New York licenses were endorsed during the year, while 586 candidates were licensed in New York on the basis of credentials.

TABLE 3.—*Failures Before Medical Licensing Boards by Licentiates of 1937*

	Number Licensed by Examination Without Failures	Number Licensed After One Failure		Number Licensed After Two or More Failures	
		Failed in State Where Licensed	Elsewhere	Failed in State Where Licensed	Elsewhere
Alabama	25	..	1	..	..
Arizona	10	4	..	..	..
Arkansas	44	..	1	..	..
California	338	5	3	1	1
Colorado	76	..	..	..	..
Connecticut	62	4	1	3	2
Delaware	13	..	..	..	1
District of Columbia	41	..	..	..	..
Florida	155	5	3	1	..
Georgia	80	..	3	..	..
Idaho	21	..	..	..	..
Illinois	482	1	3	..	2
Indiana	119	..	1	..	..
Iowa	99	..	..	..	..
Kansas	82	..	..	..	..
Kentucky	81	..	..	..	..
Louisiana	143	1	..	..	..
Maine	51	..	3	..	4
Maryland	203	5	1	..	2
Massachusetts	224	22	2	52	1
Michigan	273	..	3	..	..
Minnesota	219	..	..	..	..
Mississippi	18	..	..	..	..
Missouri	173	4	3	..	..
Montana	4	..	..	..	..
Nebraska	79	..	..	..	..
Nevada	5	..	..	..	..
New Hampshire	16	..	..	..	1
New Jersey	241	..	2	..	7
New Mexico	1	..	..	..	1
New York	880	130	11	38	10
North Carolina	80	..	1	..	1
North Dakota	13	..	..	..	..
Ohio	314	1	4	..	1
Oklahoma	63	..	1	..	1
Oregon	58	..	..	..	..
Pennsylvania	522	..	4	..	1
Rhode Island	35	2	1	1	..
South Carolina	46	..	..	..	..
South Dakota	17	..	..	..	..
Tennessee	197	..	2	..	..
Texas	173	2	7	..	1
Utah	10	..	..	..	..
Vermont	25	..	..	..	..
Virginia	144	1	1	..	2
Washington	56	..	..	..	..
West Virginia	59	..	..	..	1
Wisconsin	118	..	..	..	..
Wyoming	2	..	..	..	..
U. S. terr. & poss.*	33	3	1	3	..
Totals	6,223	190	63	99	40

* Hawaii, Puerto Rico

Six physicians were licensed, one each in Arizona, New Hampshire and New York by endorsement of the credentials of the Medical Council of Canada, one physician was endorsed in New Mexico and one in New York on a license issued in Ontario and one in Vermont on Quebec credentials. Licenses were issued by endorsement of European credentials in two states, New Hampshire and New York. Three were so registered in New Hampshire on the basis of certificates from Germany. Those in New York (144) represented the following countries: Austria four, Czechoslovakia one, Dominican Republic one, France one, Germany 127, Hungary six,

(CONTINUED ON PAGE 1354)

* Alaska, Hawaii, Puerto Rico, Virgin Islands.

TABLE 5.—*Candidates Licensed by Reciprocity and Endorsement—1937*

Marginal Number	SCHOOL	1 Alabama	2 Arizona	3 Arkansas	4 California	5 Colorado	6 Connecticut	7 Delaware	8 District of Columbia	9 Florida	10 Georgia	11 Idaho	12 Illinois	13 Indiana	14 Iowa	15 Kansas	16 Kentucky	17 Louisiana	18 Maine	19 Maryland	20 Massachusetts	21 Michigan	22 Minnesota	23 Mississippi	24 Missouri	25 Montana	26 Nebraska	27 Nevada	28 New Hampshire	29 New Jersey	30 New Mexico	31 New York	32 North Carolina	33 North Dakota	34 Ohio	35 Oklahoma	36 Oregon	37 Pennsylvania	38 Rhode Island	39 South Carolina	40 South Dakota	41 Tennessee	42 Texas	43 Utah	44 Vermont	45 Virginia	46 Washington	47 West Virginia	48 Wisconsin	49 Wyoming	50 U. S. Terr. & Poss.*	Totals	Marginal Number
	ARKANSAS																																																			
1	University of Arkansas School of Medicine	..	..	..	3	4	..	..	..	..	1	..	1	3	..	..	1	1	..	..	..	2	..	..	2	..	..	..	..	1	1	3	..	..	..	1	..	..	..	..	..	..	15	..	..	1	..	..	..	..	..	40	1
	CALIFORNIA																																																			
2	College of Medical Evangelists	..	4	..	8	1	..	..	..	..	..	..	1	..	1	..	..	..	..	5	1	4	1	..	1	2	..	..	..	..	2	3	..	1	1	1	..	..	..	..	..	..	4	3	..	1	..	6	1	..	..	1	53	2
3	Stanford University School of Medicine	..	..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	5	3
4	University of California Medical School	..	..	..	1	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	2	..	..	..	..	1	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	10	4
5	University of Southern California School of Medicine	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	5
	COLORADO																																																			
6	University of Colorado School of Medicine	..	..	..	5	..	..	..	..	..	..	..	2	2	..	1	..	1	..	1	..	..	..	..	..	..	1	1	..	..	..	2	1	..	1	3	..	..	..	..	..	..	1	2	..	..	1	..	..	1	..	26	6
	CONNECTICUT																																																			
7	Yale University School of Medicine	..	1	..	2	1	11	1	1	..	..	..	2	..	..	..	..	..	1	1	4	3	..	..	1	..	..	..	2	1	..	9	..	..	..	..	..	..	2	.	..	1	..	..	..	..	..	..	..	..	..	..	..	44	7
	DISTRICT OF COLUMBIA																																																			
8	George Washington University School of Medicine	..	..	..	1	1	..	..	4	..	1	..	3	..	..	..	..	..	..	4	..	..	1	..	..	..	..	..	..	..	2	..	5	1	..	1	..	..	1	..	..	..	..	..	..	1	..	1	..	..	..	27	8
9	Georgetown University School of Medicine	..	..	..	1	1	2	1	9	..	..	..	..	..	..	..	..	..	..	3	2	..	..	..	..	..	..	..	..	..	..	8	..	31	1	..	4	..	..	6	4	..	..	1	1	..	3	4	..	..	..	..	..	82	9
10	Howard University College of Medicine	3	..	..	2	..	..	..	4	..	..	..	2	1	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	2	..	18	..	..	..	1	..	2	..	..	..	..	..	..	..	1	..	..	..	..	38	10
	GEORGIA																																																			
11	Emory University School of Medicine	3	..	..	3	..	..	..	..	..	3	..	..	2	..	..	2	1	..	1	..	1	..	5	..	..	1	..	..	..	..	..	1	4	..	3	..	..	..	..	2	..	2	..	..	..	1	..	..	..	..	..	35	11
12	University of Georgia School of Medicine	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	1	..	1	1	1	..	..	..	..	..	..	4	..	..	..	..	..	..	1	1	..	..	..	..	..	14	12
	ILLINOIS																																																			
13	Loyola University School of Medicine	..	1	..	2	..	1	..	..	..	..	..	2	2	..	..	..	..	..	..	..	5	..	..	..	..	..	..	..	..	..	4	2	..	..	5	2	..	2	..	..	..	..	1	..	..	..	..	..	3	..	..	32	13
14	Northwestern University Medical School	..	..	1	19	2	..	..	2	..	..	4	8	1	..	5	2	..	..	..	1	6	4	..	5	3	1	..	..	..	1	4	1	5	..	1	2	..	..	1	3	7	3	..	2	3	1	3	..	..	101	14
15	University of Chicago, Rush Medical College	1	2	..	10	3	2	..	..	..	1	1	3	7	2	..	1	..	..	..	..	8	1	..	1	1	1	1	..	..	3	5	..	1	5	..	..	1	..	..	..	..	5	2	1	..	1	4	5	3	5	87	15
16	University of Chicago, The School of Medicine of the Division of the Biological Sciences	..	..	..	1	..	1	..	1	..	..	..	4	1	..	..	..	..	..	..	..	2	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	1	..	14	16
17	University of Illinois College of Medicine	1	2	1	5	1	3	..	..	..	..	..	5	1	..	1	..	1	..	2	..	19	..	..	3	1	1	..	..	..	1	4	5	..	1	3	1	..	..	..	..	..	..	3	1	..	..	..	..	4	1	..	71	17
	INDIANA																																																			
18	Indiana University School of Medicine	..	..	..	7	..	..	1	..	..	1	2	3	1	..	..	..	..	..	1	..	10	..	..	3	..	..	1	..	1	..	5	3	..	3	..	1	..	..	..	..	..	4	1	..	..	..	1	1	..	..	50	18
	IOWA																																																			
19	State University of Iowa College of Medicine	..	2	..	11	1	1	..	1	..	1	3	4	..	..	1	1	1	..	..	..	14	1	..	1	1	..	..	..	3	..	8	1	..	6	..	..	1	..	..	1	1	4	..	..	..	6	..	3	2	..	80	19
	KANSAS																																																			
20	University of Kansas School of Medicine	..	..	2	8	1	1	..	..	..	..	3	4	1	..	..	1	..	..	..	..	3	..	..	14	..	..	..	..	..	..	..	..	..	..	2	5	1	..	..	..	..	..	3	..	..	2	..	..	..	1	..	52	20
	KENTUCKY																																																			
21	University of Louisville School of Medicine	4	..	..	1	2	1	..	..	..	1	..	2	5	..	2	2	2	..	..	..	2	..	..	2	1	1	1	..	3	..	4	1	..	7	..	..	..	..	2	..	..	4	3	..	1	1	10	1	1	1	68	21
	LOUISIANA																																																			
22	Louisiana State University Medical Center	4	1	1	..	..	..	..	..	..	1	1	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	2	..	..	1	..	..	..	..	..	1	..	7	2	..	..	..	2	..	..	..	25	22
23	Tulane University of Louisiana School of Medicine	5	2	1	6	..	..	..	2	..	2	..	..	1	..	..	1	2	..	1	.	3	1	3	..	..	..	..	..	..	1	3	4	1	..	1	2	..	..	..	1	..	1	30	2	..	1	1	1	..	..	..	79	23
	MARYLAND																																																			
24	Johns Hopkins University School of Medicine	..	..	2	4	1	4	..	1	..	1	..	4	..	1	..	1	1	1	4	.	5	..	..	..	..	..	1	1	3	..	15	2	..	1	..	..	2	..	1	..	1	2	..	..	2	1	1	..	..	1	64	24
25	University of Maryland School of Medicine and College of Physicians and Surgeons	1	1	..	..	..	..	1	3	..	1	..	2	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	3	1	14	2	..	2	..	1	1	..	1	..	..	4	1	..	3	..	6	..	..	1	51	25
	MASSACHUSETTS																																																			
26	Boston University School of Medicine	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	7	..	..	..	1	..	..	..	3	1	..	9	..	..	1	..	..	1	1	..	..	..	..	..	2	..	..	..	..	..	..	..	27	26
27	Harvard University Medical School	1	..	..	6	1	7	..	..	..	1	..	2	..	..	..	1	1	2	..	16	6	1	..	..	..	..	1	5	2	..	16	..	1	10	2	..	5	1	..	..	..	..	1	..	1	..	..	..	..	3	93	27
28	Tufts College Medical School	..	..	..	5	..	2	..	..	..	1	..	..	..	..	..	..	..	..	1	18	1	..	1	..	..	..	..	4	..	..	9	..	..	1	..	..	2	3	..	..	..	1	..	1	..	..	..	..	..	1	51	28
	MICHIGAN																																																			
29	University of Michigan Medical School	1	..	1	6	1	3	..	..	..	..	..	3	4	1	..	1	2	1	..	..	2	..	..	..	..	1	..	..	2	3	4	..	..	8	..	2	3	..	..	..	..	..	1	..	..	..	1	6	1	1	59	29
30	Wayne University College of Medicine	..	1	..	2	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	4	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	12	30
	MINNESOTA																																																			
31	University of Minnesota Medical School	..	..	..	11	1	..	..	1	..	..	1	4	..	3	..	1	..	..	1	1	7	3	..	1	9	..	..	..	1	..	6	..	1	..	..	2	2	..	..	..	..	4	..	..	..	..	4	..	5	1	..	70	31
	MISSOURI																																																			
32	St. Louis University School of Medicine	..	1	..	6	..	1	..	1	..	1	1	12	1	1	1	..	..	..	1	..	9	..	..	4	1	1	..	..	3	..	9	..	..	23	..	1	1	..	..	..	..	5	..	..	..	1	1	1	1	..	88	32
33	Washington University School of Medicine	1	2	2	10	1	..	..	..	..	..	4	12	4	1	5	1	..	..	..	.	4	..	..	6	..	..	..	1	3	..	1	..	..	1	2	1	2	..	.	..	..	5	1	..	3	4	..	..	2	..	79	33

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(CONTINUED FROM PAGE 1351)

Italy one, Russia one, Scotland one and Switzerland one. Two physicians were registered in California by the endorsement of certificates from Alaska and Hawaii, one each in Idaho and Utah on the basis of credentials from Hawaii, and four in New York on the basis of licenses issued in Puerto Rico.

The five homeopathic boards in existence—Arkansas, Connecticut, Delaware, Louisiana and Maryland—licensed none by endorsement nor did the eclectic examining board in Arkansas.

Diplomates of the National Board of Medical Examiners were registered in forty states, the District of Columbia, Alaska, Hawaii and Puerto Rico.

TABLE 6.—*Reciprocity and*

Compilation of data furnished by state examining boards. This information is not guaranteed, as there may have been

Marginal Number	The Examining Board of	Reciprocates with, or Endorses Certificates Granted by: Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Dist. of Columbia	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	Marginal Number
1	Alabama	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
2	Arizona	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2
3	Arkansas (regular board)	+	..	..	+	..	..	..	+	..	+	..	+	+	+	+	+	..	+	..	+	+	+	+	..	+	+	..	..	+	3
4	California	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4
5	Colorado	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5
6	Connecticut (regular board)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6
7	Delaware (regular board)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	7
8	District of Columbia	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8
9	Florida	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	9
10	Georgia	+	..	+	+	+	..	..	+	..	..	..	..	+	+	+	+	+	+	+	..	+	+	+	+	..	+	+	+	+	+	10
11	Idaho	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	11
12	Illinois	+	..	+	+	+	..	..	+	..	+	..	..	+	+	+	+	+	+	+	..	+	+	+	+	..	+	+	..	+	..	12
13	Indiana	+	..	+	+	+	..	..	+	..	+	..	+	..	+	+	+	+	+	+	..	+	..	+	+	..	+	+	+	+	..	13
14	Iowa	+	..	+	+	+	..	+	+	..	+	..	+	+	..	+	+	+	+	+	..	+	..	+	+	+	+	+	+	+	+	14
15	Kansas	+	+	+[19]	+	+	..	+	+	..	+	..	+	+	+	..	+	+	+	+	..	+	..	+	+	+	+	+	+	+	+	15
16	Kentucky	+	..	+	+	+	..	+	+	..	+	..	+	+	+	+	..	+	..	+	..	+	+	+	..	+	+	+	+	+	+	16
17	Louisiana (regular board)	+	..	+	+	+	..	+	+	..	+	..	+	+	+	+	+	..	+	+	..	+	+	+	+	..	+	+	+	+	+	17
18	Maine	..	..	..	+	+	..	+	+	..	+	..	+	+	+	+	+	..	+	+	..	+	+	+	..	+	+	+	+	+	+	18
19	Maryland (regular board)	+	..	+	+	..	..	+	+	..	+	..	+	+	+	+	+	+	+	..	..	+	+	+	+	+	+	+	+	+	+	19
20	Massachusetts	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	20
21	Michigan	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	21
22	Minnesota	+	..	+	+	+	..	+	..	..	+	..	+	..	+	..	+	+	+	+	..	..	..	+	+	+	+	+	+	+	+	+	22
23	Mississippi	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	23
24	Missouri	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	24
25	Montana	+	+	+	+	+	..	+	+	..	..	..	..	+	+	+	+	+	..	+	+	..	+	+	+	+	..	+	+	+	..	+	25
26	Nebraska	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	26
27	Nevada	..	..	+[21]	+	+	..	..	..	..	+	..	+	+	+	+	+	+	+	+	..	+	+	+	+	..	+	+	..	+	..	..	27
28	New Hampshire	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	28
29	New Jersey	+	..	..	+	+	..	..	+	..	+	..	+	+	+	+	+	+	+	+	..	+	+	..	..	..	+	..	+	..	..	..	29
30	New Mexico	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	30
31	New York	+	..	..	+	..	..	+	..	..	..	..	..	+	+	..	..	..	..	+	..	..	+	..	..	..	..	+	..	+	..	..	31
32	North Carolina	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	32
33	North Dakota	+	..	+	+	..	..	..	..	..	+	..	+	+	+	+	+	+	+	+	..	+	..	..	..	+	+	+	+	+	+	33
34	Ohio	+	+	+	+	+	+	+	+	..	+	..	+	+	+	+	+	+	+	+	..	+	..	+	+	+	+	+	+	+	+	34
35	Oklahoma	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	35
36	Oregon	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	36
37	Pennsylvania	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	37
38	Rhode Island	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	38
39	South Carolina	+	..	..	..	..	..	..	..	..	+	..	..	..	..	+	+	+	+	..	..	..	..	..	..	..	..	..	..	+	+	..	39
40	South Dakota	+	+	+	+	+	..	..	..	..	+	..	..	+	+	+	+	+	..	..	..	+	..	+	..	+	..	+	..	..	+	40
41	Tennessee	+	..	+	+	+	..	..	+	..	+	..	+	+	+	+	+	+	+	+	..	+	+	+	+	+	+	..	+	+	+	41
42	Texas	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	42
43	Utah	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	43
44	Vermont	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	44
45	Virginia	+	..	+	+	..	..	+	+	..	+	..	..	+	+	+	+	+	+	+	..	+	+	+	..	+	..	..	+	+	+	45
46	Washington	+	..	..	+	+	..	..	..	..	+	..	..	..	+	..	+	+	..	+	..	..	+	+	+	+	..	..	..	..	..	..	46
47	West Virginia	+	..	+	..	..	..	+	+	..	+	..	+	+	+	+	+	+	..	+	..	+	+	+	+	+	+	+	..	+	..	47
48	Wisconsin	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	48
49	Wyoming	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	49

1. 1st P, first papers required; Int., declaration of intention; +, full citizenship required.
2. In most cases there is a small additional recording or registration fee.
3. If state of original license grants similar privileges.
4. Internship accepted in lieu of one year's practice.
5. Professional practice required.
6. No professional practice required.
7. Just preceding application.
8. No basic science reciprocity—examination must be within the state.
9. Basic science certificate required either by reciprocity or examination in addition to basic science subjects of National Board.
10. Reserve officers not eligible.
11. Applicant's diplomate certificate must be dated not less than one year or more than ten years of the filing date in California of an application; applicant must also have been a resident of some state or territory of the United States for a period of at least one year after the date of his diplomate certificate.
12. Oral examination required when original license is ten or more years old.

Not included in the table are eighty osteopaths licensed by the board of medical examiners in four states; namely, two in New Hampshire and seventy-two in Texas granted the right to practice medicine and surgery, two licensed to practice osteopathy and surgery in Wisconsin and four granted this privilege in Wyoming. Likewise excluded are those osteopaths granted licenses to practice medicine and surgery in California.

One physician was licensed in Connecticut after an oral examination because of his many contributions to medicine during the past twenty years.

Illinois licentiates (197) were registered in thirty-six states, thirty-seven of whom went to Michigan, twenty-five to California, seventeen to Wisconsin and fourteen each to Indiana and Texas. Fewer than ten were endorsed to thirty-one states. Maryland had the greatest number of its licentiates registered in any state, sixty-one, who were given the right to practice in New York. Arizona, Connecticut, Delaware, Florida, Idaho, Montana, Nevada, New Hampshire, New Mexico, Rhode Island, South Dakota, Washington, Wyoming, Alaska, Hawaii and Puerto Rico had less than ten of their licentiates endorsed to other states. Every state

had at least one physician endorsed. Delaware, Idaho, Nevada, New Mexico and Alaska had only one endorsed.

Included in the group at the side of the table listed as "U. S. territories and possessions" are Alaska, Hawaii, Puerto Rico and the Virgin Islands.

A total of 3,098 physicians secured licenses by this method in 1937.

Medical College 87, Georgetown University School of Medicine and the University of Nebraska College of Medicine each 82, and the State University of Iowa College of Medicine 80. Graduates of fifty-two foreign faculties of medicine and two licensing corporations of England and Scotland, forty-eight extinct medical schools, three unapproved institutions

Endorsement Policies

changes of which this office has not been advised. For an official statement write directly to the medical board.

	Reciprocates with, or Endorses Certificates Granted by																					Requirements					
Marginal Number	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	Alaska	Puerto Rico	At the Discretion of the Board	National Board of Medical Examiners	U. S. Government Services	Basic Science Certificate	Internship	Professional Practice	Citizenship [1]	Fees, Dollars [2]	Miscellaneous	Marginal Number
1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+[3]	+	+	..	+	1[4]	1st P	50	..	1
2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+[5]	+[5 6]	+[6]	..	3[4 7]	..	100	..	2
3	..	..	+	+	+	..	+	..	..	..	+	+	..	+	+	..	+	+	..	..	..	..	+[9]	..	+	..	1[4]	+	50[30]	..	3
4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+[12]	+[11]	+[10]	..	..	..[4 13]	..	100	..	4
5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+[9]	..	+	..	1[4]	Int	50	..	5
6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+[14]	+[14 6]	..	+[15]	..	3[4 16]	1st P	50	..	6
7	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+[3]	+[5]	+	..	+	2[7]	+	100	..	7
8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+[3]	..	+[5]	+	+	2[7]	..	50	..	8
9	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	9
10	..	+	+	+	+	+	+	..	+	+	+	+	+	+	+	+	+	+	..	..	..	..	+	..	..	..	0	+	50	..	10
11	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	11
12	..	..	+	+	+	+	+	..	..	..	+	+	+	+	+	..	+	+	+	..	..	..	+[17]	+[10 17]	..	+	1[4]	..	25	[17]	12
13	+	+	+	+	+	..	+	..	..	+	+	+	+	+	+	..	+	+	+	..	..	..	+	..	..	..	1[4]	+	50	..	13
14	+	+	+	+	+	..	+	..	..	+	+	..	+	..	+	+	+	+	+	..	..	..	+	..	+	+	1[4]	1st P	50	..	14
15	..	+	+	+	+	..	+	..	+	+	+	+	+	+	+	..	+	+	+	..	..	..	+	..	..	..	1[4 7]	+	[18]	..	15
16	..	..	..	+	+	..	+	..	+	+	+	+	+	+	+	..	+	+	+	..	..	..	+	+	..	..	1[4]	+	50	..	16
17	..	+	+	+	+	+	+	..	+	+	+	+	+	+	+	+	+	+	+	..	..	..	..	..	..	+	1[4]	1st P	50	..	17
18	..	..	+	+	+	+	+	..	+	..	+	+	+	+	+	..	+	+	+	..	..	..	+[14]	..	..	..	1[4]	1st P	50	..	18
19	..	+	..	+	+	+	+	..	+	..	+	+	..	+	+	..	+	+	..	..	..	..	+	..	..	..	1[4]	1st P [20]	50	..	19
20	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	..	..	..	..	..	25	..	20
21	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	..	..	+	+	1[4]	+	50	..	21
22	+	+	..	..	+	+	+	..	..	..	+	+	+	+	+	+	+	+	+	..	..	..	+[17]	..	+	..	0	+	75	[17]	22
23	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+	..	..	..	1[4]	1st P	50.25	..	23
24	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+	..	..	..	1[4]	..	50	..	24
25	..	+	+	..	+	..	..	+	..	+	..	+	+	..	+	+	+	+	+	..	..	..	+[14]	..	..	..	1[4]	+	75	..	25
26	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+	..	+	..	1[4]	+	50	..	26
27	+	..	..	+	+	+	+	..	..	+	+	..	+	+	..	..	+	+	..	+	..	..	+	..	..	..	1[4]	Int	100	[12]	27
28	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+	+	..	+	0	..	20	..	28
29	+	..	+	+	+	..	+	..	..	..	+	+	+	+	..	+	+	..	..	..	..	+	+	..	..	+	0	Int	100	..	29
30	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+	+	..	..	1[4]	..	50	..	30
31	..	+	..	+	..	..	..	..	..	..	+	+	+	..	+	..	..	+	..	..	+	+	+	..	..	..	0	1st P	25	..	31
32	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+	+	..	..	0	+	50	..	32
33	..	+	..	+	+	+	..	..	..	+	..	+	..	+	..	+	+	+	..	..	..	+	+	..	..	+	1	1st P	50[22]	[14]	33
34	+	+	+	..	+	+	+	..	+	+	+	+	+	+	+	..	+	+	+	+	..	..	+	..	..	..	1[4]	1st P	50	3 [29]	34
35	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+	..	+	+	1[4]	+	100	..	35
36	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+[9]	..	+	+	1[4]	Int	100	..	36
37	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+	+	..	+	2[24]	1st P	100	..	37
38	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+[14]	..	..	..	..	1st P	20	..	38
39	..	+	..	+	..	..	+	..	..	..	+	+	..	..	+	..	+	..	+	..	..	..	+	..	..	..	1[4]	+	50	..	39
40	..	+	+	+	+	..	..	+	..	+	+	+	+	..	+	+	+	+	+	..	..	..	+	+	..	+	1	+	50	..	40
41	+	+	..	+	+	..	+	..	+	+	..	+	+	..	+	+	+	+	+	..	..	..	+	+	..	..	0	+	10	..	41
42	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	..	+	..	..	1[25]	..	50	..	42
43	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+	+	..	+	0	Int	50	..	43
44	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+	..	..	+	0	..	50	..	44
45	+	+	..	+	+	..	+	..	+	+	+	..	+	..	+	..	+	+	+	..	..	..	+	+	..	..	2[26]	1st P	50	..	45
46	..	..	..	..	+	+	+	..	..	+	+	+	+	+	+	..	..	+	+	+	..	..	+[8]	..	+[8]	+	0	+	25	..	46
47	..	+[27]	+	+	+	..	+	..	+	+	+	+	+	+	+	..	..	+[28]	+	..	..	..	+	..	..	+	2[4]	..	100	..	47
48	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+[14]	..	+	+	+	1[29]	..	50[22]	..	48
49	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+[14]	+[14]	+	..	+	0	+	50	..	49

13. Applicant must have resided in the state used as basis of application for one year after date on said certificate or in lieu of residence must show proof of two years' legal practice in some state or territory of the United States. (Internship accepted as residence.)
14. Oral examination required.
15. Unless in practice in another state for five years.
16. Six months of which must be just preceding application.
17. Practical, clinical examination required.
18. Same as charged Kansas.
19. Regular and Homeopathic boards.
20. Canada excepted.
21. Regular board.
22. Fee same as applicant's state charges if more than $50.
23. Oral examination required if applicant's state requires it.
24. If an applicant passes the examination in the state from which he transfers after the completion of his internship, no practice is required.
25. Internship accepted if served in this state.
26. Internship accepted—considered equivalent to two years' practice.
27. Five years' practice.
28. Conditionally.
29. A two year internship is accepted.
30. License by National Board certificate at examination fee of $15 unless holding a license from another state.

In table 5 the 3,098 physicians licensed by reciprocity and endorsement and, in addition, eighty osteopaths so licensed, are recorded by school of graduation and state or territory where licensed. All of the existing medical schools in the United States and eight in Canada offering the complete medical course were represented. The largest number of graduates of any one school were from Northwestern University Medical School, 101; Harvard had 93 licensed by this method, St. Louis University School of Medicine 88, Rush and several osteopathic schools were licensed without examination.

Seventy-two osteopaths in Texas and two in New Hampshire were granted the right to practice medicine and surgery, and two and four osteopaths, respectively, permitted the privilege of practicing surgery in Wisconsin and Wyoming. There were 238 graduates of foreign medical faculties registered, 76 from extinct medical schools and 104 graduates of unapproved schools, a total of 418. Of the remainder

(2,760), 2,712 were from approved medical schools in the United States and forty-eight from the Canadian schools.

CANDIDATES ADDED TO THE PROFESSION

Licentiates representing additions to the profession during 1937 are given in table 7. The figures represent candidates examined in 1937 and licensed; also those examined in previous years whose licenses were withheld and issued in 1937, those certified on the basis of the certificate of the National Board of Medical Examiners, government services, Canadian and foreign credentials and miscellaneous. In the main they represent recent graduates. Altogether, 6,403 were added to the profession as contrasted with approximately 4,000, the number removed by death in 1937. These figures indicate that at least 1,500 have been added to the medical profession. It is assumed that the great majority of those licensed are in practice. It is interesting to note that, of 9,793 licenses issued throughout the year, 6,403, 65.4 per cent, are actual additions to the medical profession. The largest number added to the profession was in New York, 1,287; Pennsylvania added 476 and Illinois 464, while Montana and Wyoming added two. More than 300 were added in California and Ohio. Between 200 and 300 were added to the physician population of Maryland, Massachusetts, Michigan, New Jersey, Tennessee and Texas. Indiana, Louisiana, Minnesota, Missouri, Virginia and Wisconsin increased their population of physicians by between 100 and 200. Thirty-one states, the District of Columbia, Hawaii and Puerto Rico added less than 100. Of the number of licentiates representing additions to the medical profession during 1937, 5,802 secured this privilege by examination and 601 by the endorsement of credentials. A great majority of the latter were licensed in New York and represent graduates of foreign medical schools

TABLE 7.—*Licentiates Representing Additions to the Medical Profession—1937*

	Examination	Reciprocity and Endorsement	Total
Alabama	21	1	22
Arizona	4	1	5
Arkansas	45	..	45
California	307	10	317
Colorado	70	3	73
Connecticut	53	23	76
Delaware	7	1	8
District of Columbia	32	4	36
Florida	20	..	20
Georgia	78	2	80
Idaho	10	..	10
Illinois	449	15	464
Indiana	116	..	116
Iowa	93	2	95
Kansas	80	1	81
Kentucky	81	..	81
Louisiana	131	..	131
Maine	43	2	45
Maryland	200	8	208
Massachusetts	240	45	285
Michigan	260	10	270
Minnesota	154	5	159
Mississippi	16	..	16
Missouri	172	7	179
Montana	2	..	2
Nebraska	79	1	80
Nevada	3	..	3
New Hampshire	14	12	26
New Jersey	237	14	251
New Mexico	2	1	3
New York	1,015	272	1,287
North Carolina	77	6	83
North Dakota	7	1	8
Ohio	317	17	334
Oklahoma	60	2	62
Oregon	41	..	41
Pennsylvania	450	26	476
Rhode Island	19	9	28
South Carolina	42	2	44
South Dakota	3	..	3
Tennessee	198	3	201
Texas	181	70	251
Utah	10	..	10
Vermont	22	7	29
Virginia	143	1	144
Washington	39	6	45
West Virginia	34	1	35
Wisconsin	106	1	107
Wyoming	..	2	2
U. S. territory and possession*	19	7	26
Totals	5,802	601	6,403
Totals for 1936	5,546	628	6,174
Totals for 1935	5,098	411	5,509

* Hawaii, Puerto Rico

TABLE 8.—*Licentiates Representing Additions to the Medical Profession Grouped in Geographic Divisions—1937*

	Examination	Reciprocity and Endorsement	Total
New England			
Maine	43	2	45
New Hampshire	14	12	26
Vermont	22	7	29
Massachusetts	240	45	285
Rhode Island	19	9	28
Connecticut	53	23	76
	391	98	489
Middle Atlantic			
New York	1,015	272	1,287
New Jersey	237	14	251
Pennsylvania	450	26	476
	1,702	312	2,014
East North Central			
Ohio	317	17	334
Indiana	116	..	116
Illinois	449	15	464
Michigan	260	10	270
Wisconsin	106	1	107
	1,248	43	1,291
West North Central			
Minnesota	154	5	159
Iowa	93	2	95
Missouri	172	7	179
North Dakota	7	1	8
South Dakota	3	..	3
Nebraska	79	1	80
Kansas	80	1	81
	588	17	605
South Atlantic			
Delaware	7	1	8
Maryland	200	8	208
District of Columbia	32	4	36
Virginia	143	1	144
West Virginia	34	1	35
North Carolina	77	6	83
South Carolina	42	2	44
Georgia	78	2	80
Florida	20	..	20
	633	25	658
East South Central			
Kentucky	81	..	81
Tennessee	198	3	201
Alabama	21	1	22
Mississippi	16	..	16
	316	4	320
West South Central			
Arkansas	45	..	45
Louisiana	131	..	131
Oklahoma	60	2	62
Texas	181	70	251
	417	72	489
Mountain			
Montana	2	..	2
Idaho	10	..	10
Wyoming	..	2	2
Colorado	70	3	73
New Mexico	2	1	3
Arizona	4	1	5
Utah	10	..	10
Nevada	3	..	3
	101	7	108
Pacific			
Washington	39	6	45
Oregon	41	..	41
California	307	10	317
	387	16	403
Territory and Possession			
Hawaii	5	7	12
Puerto Rico	14	..	14
	19	7	26
Totals	5,802	601	6,403
Totals for 1935	5,546	628	6,174
Totals for 1936	5,098	411	5,509

licensed on the basis of their foreign credentials and diplomates of the National Board of Medical Examiners. In 1935 there were 5,098 added by means of examination and 411 by endorsement of credentials, a total of 5,509. In 1936 there were 665 more added than in 1935 and, in 1937, 229 more than in 1936 and 894 more than in 1935. No additions were made to the physician population of Alaska, but twenty-six were added in Hawaii and Puerto Rico.

each, the Pacific group of states 403, the East South Central 320 and the Mountain division 108. Fourteen were added in Puerto Rico and twelve in Hawaii.

In table 9 those representing additions to the medical profession are arranged by schools; the same as those examined are listed in table 2—existing approved medical schools in the United States and Canada, foreign faculties of medicine, schools now extinct and unapproved schools.

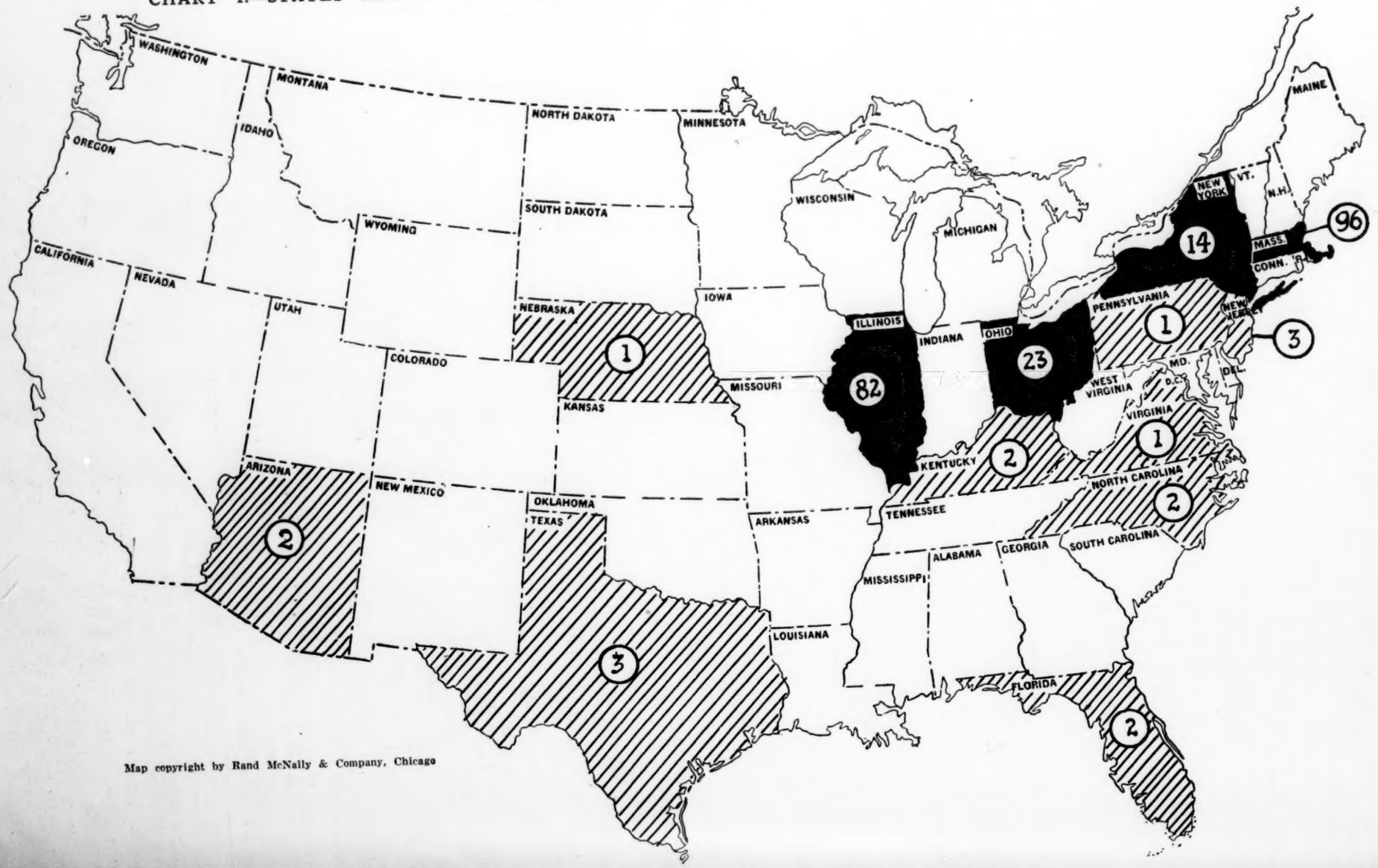
TABLE 9.—*Individuals Licensed Classified by Schools*

SCHOOL	Examined	Reciprocity and Endorsement	Total
ARKANSAS			
University of Arkansas School of Medicine	51	2	53
CALIFORNIA			
College of Medical Evangelists	55	12	67
Stanford University School of Medicine	46	..	46
University of California Medical School	48	1	49
University of Southern California School of Med	44	1	45
COLORADO			
University of Colorado School of Medicine	48	..	48
CONNECTICUT			
Yale University School of Medicine	11	28	39
DISTRICT OF COLUMBIA			
George Washington University School of Medicine	57	1	58
Georgetown University School of Medicine	85	41	126
Howard University College of Medicine	46	3	49
GEORGIA			
Emory University School of Medicine	56	..	56
University of Georgia School of Medicine	32	..	32
ILLINOIS			
Loyola University School of Medicine	103	5	108
Northwestern University Medical School	137	5	142
University of Chicago, Rush Medical College	144	1	145
University of Chicago, The School of Medicine of the Division of the Biological Sciences	28	3	31
University of Illinois College of Medicine	138	2	140
INDIANA			
Indiana University School of Medicine	96	..	96
IOWA			
State University of Iowa College of Medicine	85	..	85
KANSAS			
University of Kansas School of Medicine	70	1	71
KENTUCKY			
University of Louisville School of Medicine	81	..	81
LOUISIANA			
Louisiana State University Medical Center	37	2	39
Tulane University of Louisiana School of Medicine	111	2	113
MARYLAND			
Johns Hopkins University School of Medicine	59	9	68
University of Maryland School of Medicine and College of Physicians and Surgeons	125	..	125
MASSACHUSETTS			
Boston University School of Medicine	37	17	54
Harvard University Medical School	89	46	135
Tufts College Medical School	91	28	119
MICHIGAN			
University of Michigan Medical School	140	1	141
Wayne University College of Medicine	86	..	86
MINNESOTA			
University of Minnesota Medical School	134	9	143
MISSOURI			
St. Louis University School of Medicine	113	2	115
Washington University School of Medicine	88	2	90
NEBRASKA			
Creighton University School of Medicine	54	1	55
University of Nebraska College of Medicine	75	1	76
NEW YORK			
Albany Medical College	17	7	24
Columbia University College of Phys. and Surgs.	78	15	93
Cornell University Medical College	66	18	84
Long Island College of Medicine	73	3	76
New York Medical College and Flower Hospital	24	22	46
New York University College of Medicine	119	8	127
Syracuse University College of Medicine	39	1	40
University of Buffalo School of Medicine	67	4	71
University of Rochester School of Medicine	34	4	38
NORTH CAROLINA			
Duke University School of Medicine	23	16	39
OHIO			
Ohio State University College of Medicine	94	..	94
University of Cincinnati College of Medicine	70	..	70
Western Reserve University School of Medicine	62	..	62
OKLAHOMA			
University of Oklahoma School of Medicine	63	1	64
OREGON			
University of Oregon Medical School	47	3	50
PENNSYLVANIA			
Hahnemann Medical College and Hospital of Phila.	102	2	104
Jefferson Medical College of Philadelphia	138	3	141
Temple University School of Medicine	127	2	129
University of Pennsylvania School of Medicine	111	11	122
University of Pittsburgh School of Medicine	58	..	58
Woman's Medical College of Pennsylvania	30	6	36
SOUTH CAROLINA			
Medical College of the State of South Carolina	46	..	46
TENNESSEE			
Meharry Medical College	33	..	33
University of Tennessee College of Medicine	101	1	102
Vanderbilt University School of Medicine	50	5	55
TEXAS			
Baylor University College of Medicine	75	1	76
University of Texas School of Medicine	78	..	78
VERMONT			
University of Vermont College of Medicine	32	10	42
VIRGINIA			
Medical College of Virginia	85	1	86
University of Virginia Department of Medicine	58	..	58
WISCONSIN			
Marquette University School of Medicine	66	..	66
University of Wisconsin Medical School	44	1	45
CANADA			
Dalhousie University Faculty of Medicine	14	1	15
Laval University Faculty of Medicine	4	1	5
McGill University Faculty of Medicine	36	7	43
Queen's University Faculty of Medicine	11	1	12
University of Alberta Faculty of Medicine	6	..	6
University of Manitoba Faculty of Medicine	3	..	3
University of Montreal Faculty of Medicine	3	..	3
University of Toronto Faculty of Medicine	15	..	15
University of Western Ontario Medical School	4	2	6
Foreign Medical Faculties	585	144	729
Extinct Medical Schools	4	..	4
Unapproved Schools	307	74	381
Totals	5,802	601	6,403

Table 8 records the licentiates representing additions to the medical profession by nine geographic divisions in 1937; namely, the New England, Middle Atlantic, East and West North Central, South Atlantic, East and West South Central, Mountain and Pacific states as well as the Territory of Hawaii and Puerto Rico. The largest number was added to the Middle Atlantic group, 2,014; the East North Central 1,291, the South Atlantic 658, the West North Central 605, the New England and West South Central group 489

The 6,403 physicians representing additions to the medical profession included graduates from the sixty-seven approved medical schools of the United States, nine schools in Canada, and others. The greatest number from any one school were 145 from Rush Medical College, 143 from the University of Minnesota Medical School, 142 were from Northwestern University Medical School and 141 from the University of Michigan Medical School and Jefferson Medical College of Philadelphia. Of the United States schools the Albany

CHART 1.—STATES REGISTERING OTHER THAN GRADUATES OF APPROVED MEDICAL SCHOOLS—1937



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The states in black registered more than 5 such candidates, those shaded 5 or less.

Medical College had the fewest, twenty-four, while only three were represented from the Universities of Manitoba and Montreal. There were 729 graduates of foreign faculties of medicine and 381 from unapproved schools.

STATE REQUIREMENTS OF PRELIMINARY EDUCATION

The minimum requirement of preliminary education exacted by the Council on Medical Education and Hospitals since 1918 has been two years of college work. Five states, however, have not revised or amended their statutes to conform with these prerequisites, although these states do not license as a rule other than approved graduates. Table 10 records the premedical training required in each state.

TABLE 10.—*State Requirements of Preliminary Training*

Two Years of College		
Alabama	Maine	Oregon
Arizona	Maryland	Pennsylvania
Arkansas	Massachusetts	Rhode Island
Colorado	Michigan	South Carolina
Delaware	Minnesota	South Dakota
District of Columbia	Mississippi	Tennessee
Florida	Montana	Texas
Georgia	Nevada	Utah
Idaho	New Hampshire	Vermont
Illinois	New Jersey	Virginia
Indiana	New Mexico	Washington
Iowa	New York	West Virginia
Kansas	North Carolina	Wisconsin
Kentucky	North Dakota	Wyoming
Louisiana	Oklahoma	
One Year of College		
California	Connecticut	
High School Graduation or its Equivalent		
Missouri	Nebraska	Ohio

REQUIRED HOSPITAL INTERNSHIPS

The medical schools and licensing boards requiring or planning to require a hospital internship for the M.D. degree and state licensure, respectively, are shown in tables 11 and 12. The effective date of the requirement is shown in both tables. Thirteen schools in the United States and four in Canada exact the internship requisite. A few of the medical schools will accept research or other clinical work in lieu of the internship.

TABLE 11.—*Internship Required by Medical Schools*

	Effective Date
University of California Medical School	1919
College of Medical Evangelists	1927
University of Southern California School of Medicine	1933
Stanford University School of Medicine	1919
Loyola University School of Medicine	1922
Northwestern University Medical School	1920
University of Illinois College of Medicine	1922
Louisiana State University Medical Center	1934
Wayne University College of Medicine	1924
University of Minnesota Medical School	1915
Duke University School of Medicine*	1932
University of Cincinnati College of Medicine	1923
Marquette University School of Medicine	1920
Canada	
University of Manitoba Faculty of Medicine	
Dalhousie University Faculty of Medicine	
McGill University Faculty of Medicine	
University of Montreal Faculty of Medicine	

* Requires a two year internship.

As revealed in table 12, twenty states, Alaska and the District of Columbia require that applicants for licensure possess a hospital internship. The first exacting this requirement was Pennsylvania in 1914. The requirement in New Hampshire became effective in 1938, while in Alabama and Louisiana it will be a requirement beginning with 1939.

REGISTRATION 1904-1937

A study of totals and percentages (table 13) for thirty-four years (1904-1937) is of interest. The number (6,589) who passed in 1937 was 375 more than in 1936 and 899 more than in 1904. The number registered without examination, 3,178, was 431 more than in 1936. Contrasting these figures with those for 1904 will show the great use being made of this system of licensure. By both methods, examination and endorsement of credentials, 9,767 were registered, 806 more than in 1936. This figure represents the largest number of candidates registered in thirty-four years.

TABLE 12.—*Internship Required by Medical Licensing Boards*

	Effective Date		Effective Date
Alabama	1939	Oklahoma	1933
Alaska	1917	Oregon	1933
Delaware	1924	Pennsylvania	1914
District of Columbia	1930	Rhode Island	1917
Illinois	1923	South Dakota	1925
Iowa	1924	Utah	1926
Louisiana	1939	Vermont	1934
Michigan	1922	Washington	1919
New Hampshire	1938	West Virginia	1932
New Jersey	1916	Wisconsin	1927
North Dakota	1918	Wyoming	1931

TABLE 13.—*Registration—1904-1937*

Year	All Candidates Examined: Passed	All Candidates Examined: Percentage Failed	Registered Without Written Examination	Total Registered
1904	5,690	19.3	1,004	6,694
1905	5,688	20.8	394	6,082
1906	6,370	20.7	1,502	7,872
1907	5,730	21.3	1,427	7,157
1908	6,089	21.7	1,284	7,373
1909	5,864	19.6	1,378	7,242
1910	5,716	18.4	1,639	7,355
1911	5,582	19.8	1,243	6,825
1912	5,467	20.5	1,272	6,739
1913	5,252	18.6	1,291	6,543
1914	4,379	21.5	1,439	5,818
1915	4,507	15.5	1,398	5,905
1916	4,147	14.9	1,352	5,499
1917	4,084	14.1	1,360	5,444
1918	3,183	13.2	1,047	4,230
1919	4,074	14.2	2,545	6,619
1920	4,061	15.3	2,557	6,618
1921	4,226	12.4	2,183	6,409
1922	3,538	12.2	2,071	5,609
1923	4,027	14.8	2,403	6,430
1924	4,754	11.8	1,917	6,671
1925	5,447	9.2	1,859	7,306
1926	5,310	7.9	1,950	7,260
1927	4,995	7.2	2,173	7,168
1928	5,084	6.8	2,227	7,311
1929	5,280	6.2	2,419	7,699
1930	5,247	5.7	2,366	7,613
1931	5,260	6.2	2 212	7,472
1932	5,238	7.6	1,883	7,121
1933	5,239	7.6	1,987	7,226
1934	5,622	8.4	2,157	7,779
1935	5,847	9.1	2,194	8,041
1936	6,214	10.0	2,747	8,961
1937	6,589	10.0	3,178	9,767

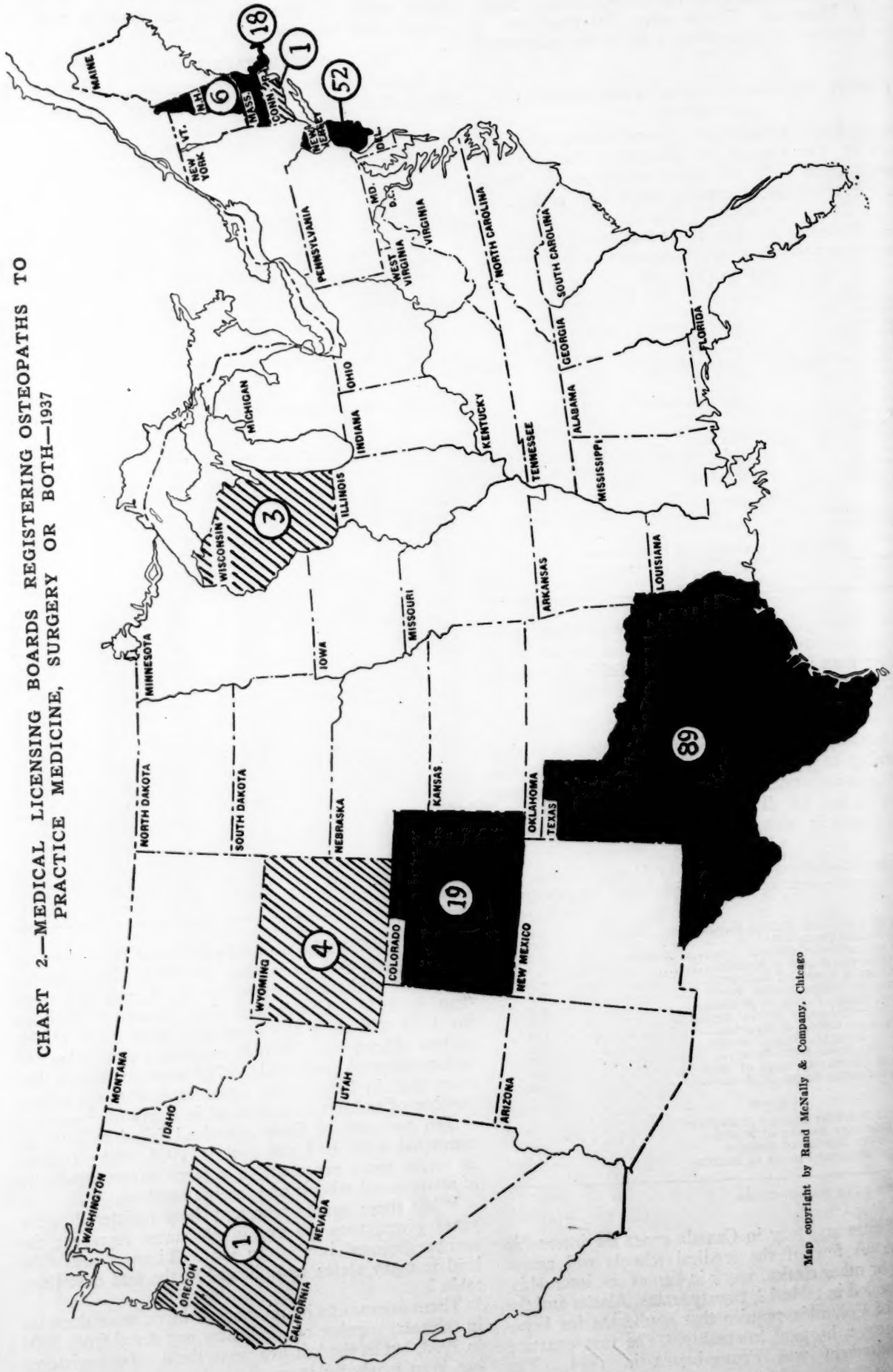
Ten per cent of those examined failed in 1937 as compared with 19.3 per cent in 1904. The failures in recent years represent to a large extent graduates of unapproved schools and foreign faculties.

While these figures represent those registered in the years given, they do not in all states represent the number licensed in a given year. Licenses are withheld in many states, as indicated in the text describing table 1.

There appears to be no marked increase or decrease in the total number of candidates registered from 1904 to 1933, but in the last five years the number registered has been markedly increasing. However, the number

The states in black registered more than 5 such candidates, those shaded 5 or less.

CHART 2.—MEDICAL LICENSING BOARDS REGISTERING OSTEOPATHS TO PRACTICE MEDICINE, SURGERY OR BOTH—1937



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The states in black registered more than 5 such candidates, those shaded 5 or less.

licensed without examination since 1906 has been rapidly increasing, owing to the almost universal system of endorsement and the recognition of the certificate of the National Board of Medical Examiners. The decrease in the number registered in 1918 was due to the sudden withdrawal of physicians and recent graduates from civilian life. Again in 1922 there was a notable reduction, this figure representing the small class that began the study of medicine in 1918. There has been a substantial increase in the number registered in 1936 and a still larger increase in 1937 both by examination and by endorsement. The graduating classes of the approved medical schools for these two years were 5,183 and 5,377 respectively. It may be anticipated that within the next few years the number of those registered to practice medicine and surgery will decrease, as there has been a reduction in medical school enrolment. In seventy-seven schools there were 22,888 students enrolled in 1935, 22,564 in 1936 and 22,095 in 1937. Classes in subsequent years in many cases will be reduced.

SOURCE OF PHYSICIANS REGISTERED

The educational fitness of the individuals registered in the last sixteen years, 1922-1937, is shown in table 14. Of the 9,767 registered by all methods in 1937, 8,363, or 85.6 per cent, graduated from approved medical schools and there were 1,404, 14.4 per cent, other practitioners registered. In the computation of these figures, all schools rated as class A and B by the Council on Medical Education and Hospitals since 1907 are classified as approved. In the column "Others" are included graduates of institutions prior to 1907, of foreign faculties of medicine, class C graduates, undergraduates, osteopaths, and graduates of schools that have been refused all recognition as medical schools.

Of the 9,767 graduates registered in 1937, 6,589 were registered after examination and 3,178 by endorsement. There were 5,617 graduates of approved medical schools examined and 972 others. Likewise among those registered by endorsement there were 2,746 approved graduates and 432 others. Approved graduates, those physicians who graduated prior to the first classification of medical schools and graduates of foreign faculties of medicine were registered in Alabama, Delaware, Idaho, Indiana, Iowa, Kansas, Louisiana, Maine, Maryland, Michigan, Minnesota, Mississippi, Montana, Nevada, North Dakota, Oklahoma, Rhode Island, South Carolina, South Dakota, Tennessee, Utah, Vermont, Washington, West Virginia, Alaska and Puerto Rico.

TABLE 14.—*Graduates of Approved Schools and Others Registered 1922-1937*

Year	Graduates of Approved Schools		Others		Totals
	Number	Per Cent	Number	Per Cent	
1922	4,518	80.6	1,091	19.4	5,609
1923	5,196	80.8	1,234	19.2	6,430
1924	5,685	85.2	986	14.8	6,671
1925	6,313	86.4	993	13.6	7,306
1926	6,437	88.7	823	11.3	7,260
1927	6,409	89.4	759	10.6	7,168
1928	6,584	90.1	727	9.9	7,311
1929	7,002	91.0	697	9.0	7,699
1930	7,011	92.1	602	7.9	7,613
1931	6,931	92.8	541	7.2	7,472
1932	6,674	93.7	447	6.3	7,121
1933	6,771	93.7	455	6.3	7,226
1934	7,168	92.1	611	7.9	7,779
1935	7,362	91.6	679	8.4	8,041
1936	7,908	88.3	1,053	11.7	8,961
1937	8,363	85.6	1,404	14.4	9,767

GRADUATES OF OTHER THAN APPROVED MEDICAL SCHOOLS AND OSTEOPATHS REGISTERED

In table 15 will be noted the total number of graduates of those institutions which have been classified as unapproved who were registered with or without examination from 1934 to 1937 inclusive.

Thirteen states and Hawaii registered 233 graduates of unapproved medical schools in 1937, 211 by examination and twenty-two without examination. The number of unapproved graduates increased by thirteen the number registered in 1936. One each was licensed in Nebraska, Pennsylvania, Virginia and Hawaii. No undergraduates were licensed in 1937, although two were examined. The twenty-three licensed by examination in Ohio and fourteen by endorsement in New York, three in New Jersey, two in Florida and Kentucky and one in Pennsylvania are graduates of the Eclectic Medical College of Cincinnati, which does not enjoy the approval of the Council on Medical Education and Hospitals but is approved by the states named. This school has not enrolled any new students for several years and plans to graduate its last class in 1939, when it will close. The 253 licensed in four years in Massachusetts represent mainly two unapproved schools located in that state and a few elsewhere. This state by law is required to admit to its examination a graduate of any chartered medical school but in 1936 amended its medical practice act appointing an approving authority. This new law goes into effect in 1940. The 266 graduates of the Chicago Medical School, an unapproved school, were registered by examination in Illinois in four years.

TABLE 15.—*Graduates of Other Than Approved Medical Schools Registered—1934-1937*

	Examination				Reciprocity and Endorsement				Totals
	1934	1935	1936	1937	1934	1935	1936	1937	
Arizona	0	0	0	2	0	0	0	0	2
Arkansas	1	0	0	0	0	0	0	0	1
California	1	1	0	0	0	2	0	0	4
Florida	1	1	1	2	0	0	0	0	5
Idaho	0	0	0	0	1	0	0	0	1
Illinois	33	67	84	82	0	0	0	0	266
Indiana	0	1	0	0	0	0	0	0	1
Kansas	1	0	0	0	0	0	0	0	1
Kentucky	1	1	0	0	0	0	2	2	6
Massachusetts	54	26	77	96	0	0	0	0	253
Mississippi	1	0	0	0	1	0	0	0	2
Missouri	0	0	0	0	0	2	0	0	2
Nebraska	0	0	0	0	0	0	0	1	1
New Jersey	0	0	5	1	4	0	1	2	13
New Mexico	0	0	1	0	0	2	1	0	4
New York	0	0	0	0	0	0	13	14	27
North Carolina	0	0	1	2	0	0	0	0	3
North Dakota	0	0	0	0	0	1	0	0	1
Ohio	0	16	31	23	1	0	0	0	71
Oklahoma	0	1	0	0	0	0	0	0	1
Pennsylvania	0	0	0	1	0	0	0	0	1
Rhode Island	0	1	0	0	0	0	0	0	1
South Dakota	0	1	0	0	0	0	0	0	1
Texas	0	0	0	0	2	0	0	3	5
Virginia	0	0	0	1	0	0	0	0	1
Wisconsin	0	0	0	0	0	0	1	0	1
Alaska and Hawaii	1	0	1	1	0	0	1	0	4
Totals	94	116	201	211	9	7	19	22	679

Chart 1 indicates by shaded lines those registering fewer than six graduates of unapproved medical schools and by a solid area those registering more than five such candidates during 1937.

In table 16 are given the number of graduates of schools of osteopathy who were registered with or without examination in 1934 to 1937 inclusive.

The states in black registered more than 5 such candidates, those shaded

CHART 3.—STATES REGISTERING GRADUATES OF MEDICAL FACULTIES ABROAD—1937

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The states in black registered more than 5 such candidates, those shaded 5 or less.

In 1937, nine states registered 113 by examination and eighty by endorsement of credentials. These osteopaths were registered in Colorado, Connecticut, Massachusetts, New Hampshire, New Jersey, Oregon, Texas, Wisconsin and Wyoming.

These osteopaths were granted the right to practice medicine, surgery or both by the Board of Medical Examiners. These facts for 1937 are shown graphically in chart 2.

Seventy-seven osteopaths failed of registration by examination as follows: two in Colorado and Connecticut, forty-four in Massachusetts, nineteen in New Jersey, nine in Texas and one in Wyoming.

In the four year period 1934-1937, 383 graduates of osteopathic schools secured the privilege of practicing medicine, surgery or both in nine states.

In Colorado osteopaths are admitted to the examination for a license to practice medicine. They have no separate board. The statute of Colorado is silent with respect to the scope of practice authorized by a license issued to osteopaths.

The Connecticut statute provides that any registered osteopath may practice either medicine, surgery or both, as the case may be, after passing a satisfactory examination before the medical examining board.

The Massachusetts statute, by definition, includes osteopathy in the practice of medicine and does not differentiate the type of license issued to an osteopathic applicant. The medical practice act requires that any applicant for license to practice must be in possession of a degree of doctor of medicine, or its equivalent, from a legally chartered medical school that gives a full four year course of instruction of not less than thirty-two weeks in each year. As has been said, the Massachusetts statute has been amended.

In New Hampshire osteopaths are granted the right to practice medicine and surgery by the Board of Registration in Medicine.

Osteopaths who are duly registered and licensed to practice osteopathy in the state of New Jersey, who present three years of practice of surgery in a hospital approved by the Board of Medical Examiners, may be admitted to the examination to be licensed to practice medicine and surgery.

TABLE 16.—*Graduates of Schools of Osteopathy Registered by Medical Licensing Boards—1934-1937*

	Examination				Reciprocity and Endorsement				
	1934	1935	1936	1937	1934	1935	1936	1937	Totals
Colorado	10	13	16	19	0	0	0	0	58
Connecticut	1	0	1	1	0	0	0	0	3
Massachusetts	21	5	12	18	0	0	0	0	56
New Hampshire	0	0	0	4	0	0	0	2	6
New Jersey	0	2	0	52	0	0	0	0	54
Oregon	0	0	0	1	0	0	0	0	1
Texas	7	7	11	17	17	13	34	72	178
Wisconsin	2	0	3	1	3	0	5	2	16
Wyoming	0	0	0	0	1	2	4	4	11
Totals	41	27	43	113	21	15	43	80	383

Osteopaths are granted the privileges of surgery in Oregon by the Board of Medical Examiners.

The statutes of Texas provide for the issuing of a license to practice medicine only. So far as the statutes indicate, the osteopaths are not restricted in their field of practice.

In Wisconsin and Wyoming osteopaths are granted the right to practice surgery.

It is to be regretted that such persons as those described in tables 15 and 16 are granted the right to practice medicine or surgery. The medical profession should be ever watchful and untiring in its efforts to prevent osteopaths and others from gaining the legal right to practice medicine or surgery, for which their training is wholly inadequate. If the licensing boards were more fully conscious of their responsibility to protect the citizens of their respective communities from ignorance and incompetence masquerading as medical skill, we should not continue to have year after year licenses granted to persons whose training falls so far short of the currently accepted standards of medical education.

TABLE 17.—*Annual Registration*

Arkansas (Eclectic Board only)	Nebraska
California	Nevada
Colorado	New York
Connecticut	North Dakota
Florida	Oregon
Georgia	Pennsylvania
Iowa	Texas
Kansas	Utah
Louisiana	Wyoming
Minnesota	

Five states—Alabama, Delaware, Florida, Mississippi and North Carolina—require physicians to pay annually an occupational or commercial tax. The fee for this registration is generally $2.

ANNUAL REGISTRATION

Eighteen states, as shown in table 17, require that all physicians licensed register annually, whether or not they reside in the state.

GRADUATES OF FACULTIES OF MEDICINE ABROAD

A study of the number of students from the United States pursuing medical courses in Europe has been carried on by the Council on Medical Education and Hospitals since 1931. There were in 1937 more than 1,500 studying abroad who in all probability plan to return to the United States to practice. Table 18 presents statistics on the number of graduates of faculties of medicine abroad examined for licensure in 1937. It is not known how many of these are foreign born but many of those licensed each year represent students from the United States. The figures in the accompanying tabulations therefore represent both American and foreign born physicians. Eighty-seven medical schools, excluding five licensing corporations, of eighteen European and seven other countries were represented. There were 919 examined, of whom 636 passed and 283, 30.7 per cent, failed. Graduates of the University of Berlin were licensed in fourteen states and the University of Munich and Budapest in ten states. All other schools were represented in less than eight states. Twenty-six states, Hawaii and Puerto Rico examined physicians educated abroad. The state of New York had the greatest number, 596, of whom 397 passed and 199, 33.3 per cent, failed. New Jersey examined fifty-nine with thirteen, 22 per cent, of failures. Maryland was third with fifty-two examined, twenty-eight passed and twenty-four, 46.1 per cent, failures.

In addition to the figures represented in this table, 238 graduates of foreign medical faculties were licensed in 1937 without examination and 147 of the 238 so registered were granted licenses on the basis of their foreign diplomas and licenses, while the remainder, 91, had already been examined by a medical board in this country.

Chart 3 shows in graphic form the states which during 1937 registered graduates of foreign medical

(CONTINUED ON PAGE 1367)

TABLE 18.—*Graduates of Medical Faculties in Countries Other Than the United States and Canada Examined—1937*

| Marginal Number | | 1 Alabama | | 2 California | | 3 Colorado | | 4 Connecticut | | 5 Florida | | 6 Illinois | | 7 Indiana | | 8 Maine | | 9 Maryland | | 10 Massachusetts | | 11 Michigan | | 12 Mississippi | | 13 Missouri | | 14 Montana | | 15 New Hampshire | | 16 New Jersey | | 17 New Mexico | | 18 New York | | 19 Ohio | | 20 Pennsylvania | | 21 Rhode Island | | 22 Tennessee | | 23 Texas | | 24 Virginia | | 25 Washington | | 26 Wisconsin | | 27 Puerto Rico and Hawaii | | Totals | Examined—Passed | Examined—Failed | Percentage of Failures | No. of Boards Examined by | Marginal Number |
|---|---|---

| | | |

TABLE 19.—*Graduates of Medical Faculties of Universities in Countries Other Than the United States and Canada Examined by Licensing Boards of the United States and Possessions, 1932-1937*

	1932-1936		1937	
	Number Examined	Percentage Failed	Number Examined	Percentage Failed
AUSTRALIA				
University of Adelaide	1	0.0	0	0.0
University of Sydney	0	0.0	1	0.0
AUSTRIA				
Karl-Franzens-Universität, Graz	19	52.6	6	16.7
Leopold-Franzens-Universität, Innsbruck	3	33.3	5	40.0
Universität Wien	126	31.0	85	21.2
BELGIUM				
Université Catholique de Louvain	6	50.0	0	0.0
Université de Liège	3	100.0	2	50.0
Université Libre de Bruxelles	2	0.0	0	0.0
Universiteit Gent	0	0.0	1	100.0
CHILE				
Universidad de Chile, Santiago	1	0.0	1	0.0
CHINA				
Pennsylvania Medical School, Shanghai	1	0.0	2	0.0
CHOSEN				
Severance Union Medical College, Keijo	2	100.0	0	0.0
COLOMBIA				
Universidad de Cartagena	1	0.0	0	0.0
CUBA				
Universidad de la Habana	17	35.3	3	66.7
CZECHOSLOVAKIA				
Deutsche Universität, Prag	20	45.0	4	50.0
Masarykova Universita, Brno	6	83.3	0	0.0
Universita Karlova, Praha	5	60.0	4	75.0
Univerzita Komenského, Bratislava	5	60.0	0	0.0
DOMINICAN REPUBLIC				
Universidad de Santo Domingo	4	25.0	0	0.0
ENGLAND				
Fellow of the Royal College of Physicians of London	1	0.0	0	0.0
Licentiate in Medicine, Surgery and Midwifery of the Apothecaries' Society of London	4	75.0	1	0.0
Licentiate of the Royal College of Physicians of London and Member of the Royal College of Physicians of London	2	50.0	0	0.0
Licentiate of the Royal College of Physicians of London and Member of the Royal College of Surgeons of England	47	8.5	16	12.5
University of Birmingham	1	0.0	2	0.0
University of Bristol	1	0.0	0	0.0
University of Cambridge	0	0.0	1	0.0
University of Durham, Newcastle-upon-Tyne	7	28.6	1	0.0
University of Liverpool	0	0.0	1	0.0
University of London	7	42.9	1	0.0
University of Oxford	0	0.0	1	0.0
University of Sheffield	5	20.0	1	0.0
ESTONIA				
Université de Tartu	1	0.0	0	0.0
FRANCE				
Université de Bordeaux	1	0.0	2	50.0
Université de Lyon	3	33.3	3	33.3
Université de Montpellier	4	25.0	1	100.0
Université de Paris	52	38.5	31	25.8
Université de Strasbourg	6	33.3	2	0.0
Université de Toulouse	4	25.0	1	0.0
GERMANY				
Albert-Ludwigs-Universität, Freiburg	26	34.6	18	44.4
Albertus-Universität, Königsberg	5	60.0	8	50.0
Christian-Albrechts-Universität, Kiel	2	0.0	1	0.0
Eberhard-Karls-Universität, Tübingen	5	40.0	4	50.0
Ernst-Moritz-Arndt Universität Griefswald	3	33.3	0	0.0
Friedrich-Alexanders-Universität, Erlangen	7	71.4	4	50.0
Friedrich-Wilhelms-Universität, Berlin	111	33.3	71	31.0
Georg August-Universität, Göttingen	1	0.0	0	0.0
Hamburgische Universität	30	20.0	18	16.7
Hessische Ludwigs-Universität, Giessen	2	0.0	4	0.0
Johann Wolfgang Goethe-Universität, Frankfurt-am-Main	25	40.0	14	14.3
Julius-Maximilians-Universität, Würzburg	18	50.0	15	33.3
Ludwig-Maximilians-Universität, München	31	32.3	32	21.9
Medizinische Akademie, Düsseldorf	3	33.3	6	33.3
Philipps-Universität, Marburg	1	0.0	0	0.0
Rheinische Friedrich-Wilhelms-Universität, Bonn	5	40.0	4	0.0
Schlesische-Friedrich-Wilhelms-Universität, Breslau	29	31.0	13	23.1
Thüringische Landesuniversitat, Jena	7	28.6	2	0.0
Universität Heidelberg	24	12.5	18	16.7
Universität Köln	13	30.8	8	37.5
Universität Leipzig	21	42.9	8	25.0
Universität Rostock	1	100.0	5	40.0
Vereinigten Friedrichs-Universität, Halle-Wittenberg	1	0.0	1	0.0
Westfälische Wilhelms-Universität, Münster	3	66.7	0	0.0
GREECE				
National University of Athens	7	85.7	5	60.0
GUATEMALA				
Universidad Nacional de Guatemala	1	100.0	1	0.0
HUNGARY				
Magyar Királyi Erzsébet Tudományegyetem, Pecs	7	57.1	1	100.0
Magyar Királyi Ferencz József Tudományegyetem, Szeged	4	25.0	1	100.0
Magyar Királyi Pázmány Petrus Tudományegyetem, Budapest	19	21.1	17	35.3
Magyar Királyi Tisza-István-Tudományegyetem, Debrecen	0	0.0	2	50.0
IRAN (PERSIA)				
Government Medical School, Teheran	1	100.0	0	0.0
IRELAND				
Licentiate of the Royal College of Physicians of Ireland and of the Royal College of Surgeons in Ireland	3	33.3	0	0.0
National University of Ireland	5	20.0	1	0.0
Queen's University, Belfast	4	25.0	0	0.0
University of Dublin	4	25.0	7	28.6
ITALY				
Regia Università di "Benito Mussolini" di Bari	0	0.0	1	0.0
Regia Università di Bologna	27	48.1	14	50.0
Regia Università di Catania	1	0.0	0	0.0
Regia Università di Firenze	8	37.5	2	100.0
Regia Università di Genova	9	77.8	4	75.0
Regia Università di Messina	0	0.0	2	100.0
Regia Università di Milano	2	0.0	3	66.7
Regia Università di Modena	6	83.3	1	100.0
Regia Università di Napoli	119	62.2	41	58.5
Regia Università di Padova	15	60.0	5	60.0
Regia Università di Palermo	32	28.1	1	0.0
Regia Università di Pavia	3	33.3	0	0.0
Regia Università di Perugia	1	0.0	3	33.3
Regia Università di Pisa	1	0.0	1	100.0
Regia Università di Roma	136	52.9	63	44.4
Regia Università di Siena	3	33.3	1	100.0
Regia Università di Torino	2	0.0	0	0.0
JAPAN				
Japan Medical College, Tokyo	0	0.0	1	100.0
LEBANON				
American University of Beirut	3	0.0	0	0.0
Université de St. Joseph, Beyrouth	3	66.7	0	0.0
MEXICO				
Escuela Libre de Homeopatia del Estado de Puebla	1	100.0	0	0.0
Escuela Médico Militar, México, D. F.	3	33.3	2	100.0
Instituto Literario y Científico, San Luis Potosí	1	100.0	0	0.0
Universidad de Guadalajara	1	0.0	0	0.0
Universidad Nacional, México, D. F.	10	20.0	4	100.0
NETHERLANDS				
Rijks-Universiteit te Leiden	2	0.0	1	0.0
Universiteit van Amsterdam	1	0.0	0	0.0
NORWAY				
Kongelige Frederiks Universiteit, Oslo	2	0.0	0	0.0
POLAND				
Uniwersytet Jana Kazimierza, Lwów	6	50.0	0	0.0
Uniwersytet Jozefa Pilsudskiégo, Warszawa	1	0.0	0	0.0
Uniwersytet Stefana Batorego, Wilno	0	0.0	1	0.0
PORTUGAL				
Universidade de Lisboa	5	60.0	0	0.0
RUMANIA				
Universitatea din București	2	50.0	2	50.0
Universitatea Regele Ferdinand I-iu din Cluj	8	62.5	0	0.0
SCOTLAND				
Fellow of the Royal Faculty of Physicians and Surgeons of Glasgow	0	0.0	1	0.0
Licentiate of the Royal College of Physicians of Edinburgh	1	0.0	0	0.0
Licentiate of the Royal College of Physicians and of the Royal College of Surgeons, Edinburgh	6	0.0	1	0.0
Licentiate of the Royal College of Physicians, of the Royal College of Surgeons, Edinburgh, and of the Royal Faculty of Physicians and Surgeons, Glasgow	66	19.7	58	25.9
School of Medicine of the Royal Colleges, Edinburgh	5	0.0	0	0.0
University of Aberdeen	14	21.4	1	0.0
University of Edinburgh	67	11.9	19	10.5
University of Glasgow	23	0.0	9	0.0
University of St. Andrews	87	12.6	10	20.0
SOUTH AFRICA, UNION OF				
University of Cape Town	1	0.0	0	0.0
SPAIN				
Universidad Central de España, Madrid	3	33.3	2	0.0
Universidad de Santiago	0	0.0	1	0.0
Universidad de Sevilla	1	0.0	0	0.0
SWITZERLAND				
Universität Basel	24	37.5	39	20.5
Universität Bern	62	41.9	68	30.9
Universität Zürich	37	35.1	30	16.7
Université de Genève	40	27.5	26	26.9
Université de Lausanne	17	23.5	29	37.9
TURKEY				
University of Istanbul	0	0.0	1	100.0
UNION OF SOCIALIST SOVIET REPUBLICS				
First Leningrad Medical Institute	1	100.0	0	0.0
First Moscow Medical Institute	4	50.0	1	0.0
Kharkov Medical Institute	4	50.0	0	0.0
Kiev Medical Institute	3	66.7	0	0.0
Military Medical Academy, Leningrad	0	0.0	1	100.0
Psycho-Neurological Institute, Petrograd	2	100.0	0	0.0
Saratov Medical Institute	4	75.0	0	0.0
Second Leningrad Medical Institute	0	0.0	1	0.0
Tomsk Medical Institute	2	50.0	0	0.0
YUGOSLAVIA				
Beogradskog Universiteta	2	50.0	0	0.0
Zagrebaskog Universiteta	1	0.0	0	0.0

(CONTINUED FROM PAGE 1363)

faculties by examination, endorsement or both. From a perusal of tables 2, 4 and 5 it can be ascertained how many were licensed by both these means in the various states. The states which licensed more than five graduates are indicated in black on the chart; those shaded, five or less.

In table 19 are assembled figures showing the standing during the six year period 1932-1936 of the graduates of faculties of medicine outside the United States and Canada admitted to licensing examinations in this country. A similar tabulation is presented for the year 1937. One hundred and twenty-eight schools and nine licensing corporations of Great Britain were represented. During the five year period 1,688 were examined and in 1937, 919. The largest number represented the

TABLE 20.—*Graduates of Faculties of Medicine Abroad Examined—1930-1937*

Year	Number Examined	Passed	Percentage Failed
1930	167	92	44.9
1931	158	91	42.4
1932	182	96	47.3
1933	200	129	35.5
1934	285	170	40.2
1935	437	303	30.7
1936	588	382	34.1
1937	919	636	30.7

Regia Università di Roma, 136, of whom 44.4 per cent failed. The Universität Wien in the five year period was second, 126, of whom 21.2 per cent failed. There were 119 from the Regia Università di Napoli with 58.5 per cent failures. A study of the percentage failed is of interest. Here again an attempt has been made to show procedure over a period of years, and if an individual fails or is examined in various states he is recorded as such for a given year.

Table 20, the last in this group of statistics, records the number of graduates of faculties of medicine abroad examined in the United States in eight years, 1930 to 1937 inclusive. There were 331 more examined in 1937 than in 1936 and 752 more than in 1930.

BASIC SCIENCE BOARDS

A certificate in the basic sciences is a prerequisite to licensure in twelve states and the District of Columbia. While the laws of some of these states include reciprocal agreements, the certificate is obtainable after examination in the majority of instances. Boards for certification of candidates functioned during 1937 in ten states and the District of Columbia and a board has functioned since July 1937 in Colorado, while in Michigan an examining board has not yet been appointed. The ten states include Arizona, Arkansas, Connecticut, Iowa, Minnesota, Nebraska, Oklahoma, Oregon, Washington and Wisconsin. In 1937 basic science requirements were established in Colorado, Michigan and Oklahoma and were introduced in several states. In table 1 is shown the years in which the various acts were enacted.

TABLE 1.—*States Having Basic Science Laws and Year of Enactment*

State	Year Enacted	State	Year Enacted
Arizona	1933	Minnesota	1927
Arkansas	1929	Nebraska	1927
Colorado	1937	Oklahoma	1937
Connecticut	1925	Oregon	1933
District of Columbia	1929	Washington	1927
Iowa	1935	Wisconsin	1925
Michigan	1937		

Statistics based on the number of candidates certified in 1937, and those who failed to secure this certification, together with the totals for other years shown for comparison, are included in the accompanying tabulations.

TABLE 2.—*Subjects of Examinations*

	Examinations Required in						
	Anatomy	Bacteriology	Chemistry	Diagnosis	Hygiene	Pathology	Physiology
Arizona	+	+	+	..	+	+	+
Arkansas	+	+	+	..	..	+	+
Colorado	+	+	+	..	..	+	+
Connecticut	+	..	..	+	+	+	+
District of Columbia	+	+	+	..	..	+	+
Iowa	+	+	+	..	+	+	+
Michigan	+	+	+	..	+	+	+
Minnesota	+	+	+	..	+	+	+
Nebraska	+	+	+	..	+	+	+
Oklahoma	+	+	+	..	..	+	+
Oregon	+	..	+	..	+	+	+
Washington	+	..	+	..	+	+	+
Wisconsin	+	..	..	+	..	+	+

The subjects in which examinations are conducted in the respective states and the District of Columbia are given in table 2. The subjects included in basic science examinations are specified by the statutes. The examining boards may neither add to nor subtract from such subjects.

Applicants examined during 1937 in the various groups—physicians or medical students, osteopaths, chiropractors and those unclassified—are included in table 3. There were 1,344 examined by twelve boards. Of this number 1,231 were doctors of medicine or medical students (referred to hereafter for clarity as physicians), sixty-four osteopaths and eighteen chiropractors, and for thirty-one it was not possible to determine what profession they represented. In applying for a basic science certificate it is not necessary in several of the states to mention the school of practice, but by checking the biographic records of the American Medical Association it has been possible to determine what profession the majority of the candidates represented. The remainder composed the unclassified group. Of all examined, 1,102 passed and 242 failed, 18.0 per cent. Of the physicians examined 13.8 per cent failed, of the osteopaths 53.1 per cent, of the chiropractors 72.2 per cent and of those unclassified 80.6 per cent. There were 1,061 physicians who passed,

TABLE 3.—*Applicants Examined—1937*

	Physicians or Med. Students		Osteopaths		Chiropractors		Unclassified		Total Examined	Passed	Failed	Percentage Failed
	P	F	P	F	P	F	P	F				
Arizona	45	11	1	0	0	0	0	3	60	46	14	23.3
Arkansas	45	0	3	0	0	0	0	0	48	48	0	0.0
Colorado	10	3	0	0	0	0	0	0	13	10	3	23.1
Connecticut	144	4	2	0	0	2	1	0	153	147	6	3.9
Dist. of Columbia	26	7	0	0	0	0	0	0	33	26	7	21.2
Iowa	55	31	9	7	0	0	2	8	112	66	46	41.1
Minnesota	179	43	4	6	2	1	0	0	235	185	50	21.3
Nebraska	93	27	0	0	0	0	1	4	125	94	31	24.8
Oklahoma	100	11	1	8	0	0	0	0	120	101	19	15.8
Oregon	82	18	2	2	0	0	1	4	109	85	24	22.0
Washington	123	13	3	7	3	7	0	0	156	129	27	17.3
Wisconsin	159	2	5	4	0	3	1	6	180	165	15	8.3
Totals—Examined	1,231		64		18		31		1,344			
Totals—Passed	1,061		30		5		6			1,102		
Totals—Failed	170		34		13		25				242	
Percentage—Failed	13.8		53.1		72.2		80.6					18.0

thirty osteopaths, five chiropractors and six unclassified. Minnesota examined the largest number, 235, of whom 21.3 per cent failed. The next largest number, 180, were examined in Wisconsin, with 8.3 per cent failures. Osteopaths were examined in Arizona, Arkansas, Connecticut, Iowa, Minnesota, Oklahoma, Oregon, Washington and Wisconsin. Chiropractors were examined in Connecticut, Minnesota, Washington and Wisconsin. One state, Arkansas, examined forty-five physicians and three osteopaths, all of whom passed. In the two states which examined for the first time during 1937, namely, Colorado and Oklahoma, there were examined, respectively, thirteen physicians in Colorado and 111 physicians and nine osteopaths in Oklahoma. Of those examined in Colorado 23.1 per cent failed, and in Oklahoma 15.8 per cent. The highest percentage of failures (41.1) was in Iowa, which examined eighty-six physicians, sixteen osteopaths and ten unclassified candidates.

The number of certificates granted by examination, reciprocity and endorsement are listed in table 4. A total of 1,102 certificates were granted after examination, of which 1,061 were issued to physicians, thirty to osteopaths, five to chiropractors and six to persons who were unclassified. There were 175 candidates certified without examination, by reciprocity or endorsement, consisting of 165 physicians and ten osteopaths. Minnesota accepted the greatest number without examination, sixty, of whom fifty-nine were physicians and one an osteopath. Wisconsin registered forty-five physicians and three osteopaths by this method, and Arkansas twenty-three physicians and two osteopaths. Arizona, Connecticut, the District of Columbia, Oklahoma and Washington licensed none without examination. Arizona and Washington, by law, have no reciprocal agreements. No chiropractors or those in the unclassified group were licensed without examination.

Table 5 shows the number of candidates examined and certified from 1927 to 1937 inclusive. In 1928, when five boards were functioning, there were 646 physicians examined, of whom sixty, or 9.3 per cent, failed and fifty-nine other practitioners, of whom twenty-eight, or 47.5 per cent, failed. In 1937, 1,226 physicians and fifty-one other practitioners were certified. During the eleven year period a total of 8,202 physicians were examined, of whom 980, 11.9 per cent, failed and 774 other practitioners, of whom 419, 54.1 per cent, failed. During this period, 1,150 physicians were certified without examination, while only sixty-five other practitioners were so registered.

Altogether, 8,792 certificates have been issued by basic science boards since 1927, of whom 8,372 were granted to physicians and 420 to other practitioners. From the high percentage of failures in the other practitioner group it seems apparent that the enforcement of basic science laws affects most seriously this group. Examination of the records of a considerable number of states having basic science laws will show that before such laws were enacted the number of other practitioners appearing for examination and licensure was very considerable and was growing. The object of these boards has been to provide a means of insuring that all candidates seeking authority to care for sick and injured people shall first possess a reasonable knowledge of the sciences fundamental to the healing art.

TABLE 4.—*Certificates Issued by Examination, Reciprocity and Endorsement—1937*

	Examination					Reciprocity and Endorsement					
	Physicians or Med. Students	Osteopaths	Chiropractors	Unclassified	Totals	Physicians	Osteopaths	Chiropractors	Unclassified	Totals	Registered
Arizona	45	1	0	0	46	0	0	0	0	0	46
Arkansas	45	3	0	0	48	23	2	0	0	25	73
Colorado	10	0	0	0	10	5	2	0	0	7	17
Connecticut	144	2	0	1	147	0	0	0	0	0	147
District of Columbia	26	0	0	0	26	0	0	0	0	0	26
Iowa	55	9	0	2	66	11	0	0	0	11	77
Minnesota	179	4	2	0	185	59	1	0	0	60	245
Nebraska	93	0	0	1	94	16	1	0	0	17	111
Oklahoma	100	1	0	0	101	0	0	0	0	0	101
Oregon	82	2	0	1	85	6	1	0	0	7	92
Washington	123	3	3	0	129	0	0	0	0	0	129
Wisconsin	159	5	0	1	165	45	3	0	0	48	213
Totals	1,061	30	5	6	1,102	165	10	0	0	175	1,277

TABLE 5.—*Total Candidates 1927-1937*

		Physicians or Med. Students						Other Practitioners					
		Examinations						Examinations					
	No. of Boards	Examined	Passed	Failed	Percentage Failed	Endorsement	Total Certified	Examined	Passed	Failed	Percentage Failed	Endorsement	Total Certified
1927	5	305	279	26	8.5	26	305	22	15	7	31.8	1	16
1928	5	646	586	60	9.3	19	605	59	31	28	47.5	0	31
1929	7	668	610	58	8.7	75	685	66	31	35	53.0	0	31
1930	7	685	606	79	11.5	104	710	78	30	48	61.5	4	34
1931	7	680	586	94	13.8	130	716	107	48	59	55.1	0	48
1932	7	657	590	67	10.2	98	688	78	44	34	43.6	12	56
1933	8	601	527	74	12.3	117	644	60	30	30	50.0	10	40
1934	9	815	725	90	11.0	123	848	51	26	25	49.0	11	37
1935	10	882	761	121	13.7	92	853	74	33	41	55.4	4	37
1936	10	1,032	891	141	13.7	201	1,092	66	26	40	60.6	13	39
1937	12	1,231	1,061	170	13.8	165	1,226	113	41	72	63.7	10	51
Totals		8,202	7,322	980	11.9	1,150	8,372	774	355	419	54.1	65	420

NATIONAL BOARD OF MEDICAL EXAMINERS

The National Board of Medical Examiners, organized in 1915, conducts examinations and awards successful candidates a certificate, which is regarded as an adequate qualification for the practice of medicine. Since 1922 its examination has been given in three parts, parts I and II being written examinations and part III a practical and clinical examination. Data are presented regarding the examinations and the issuance of certificates and include tables enumerating the results of examinations in parts I, II and III for each calendar year, excluding duplication by counting the last examination if more than one part is taken within the year, and also of those certified or failing of certification. Also figures from compilations not reproduced here are discussed. Similar data have been presented in the State Board Number of THE JOURNAL for twenty years.

Four examinations were held in parts I and II during 1937, at which 1,435 and 855, respectively, were examined. In part I, 871 passed and 149, 14.6 per cent, failed, while, in part II, 803 passed and 6.0 per cent failed. In part I, 415 took incomplete examinations. Candidates are required to take all six subjects of part I at a regular examination period unless entitled to take an incomplete examination or electing to take a divided examination. An incomplete examination is arranged for candidates taking part I at the end of their second medical year in schools whose third year curriculums include courses in one or two subjects of this part. The

subjects thus postponed may be taken at any examination period after the candidate has completed them in his medical school. Any candidate not entitled to take an incomplete examination in part I may, if he so elects, take a divided examination by writing any four subjects at one time and the remaining two within thirteen months, but after at least one semester of study. Incomplete examinations were not included when percentages were being computed, since they represent neither a candidate eligible for certification nor a failure. One candidate took an incomplete examination in part II.

Since 1922 a total of 15,722 examinations have been given in part I and 8,257 in part II. From 1922 to 1937 inclusive 10,031 individuals were successful in passing part I and 7,434 in passing part II. The figures for those examined include 4,071 incomplete examinations in part I and thirty-six in part II. The figures cover the totals of each examination given during a calendar year and include some who fail and are reexamined during the same year and also some who pass parts I and II in the same year. Therefore they represent examinations conducted rather than individuals examined. In the sixteen year period since 1922 there have been 1,620 failures in part I, 13.9 per cent, and 787 in part II, 9.6 per cent.

TABLE 1.—*Examinations in Part III*

Examinations of	Total Examined*	Passed	Failed	Percentage Failed
1922	22	22	0	0.0
1923	82	81	1	1.2
1924	126	120	6	4.8
1925	219	206	13	5.9
1926	255	243	12	4.7
1927	293	272	21	7.2
1928	322	306	16	5.0
1929	352	337	15	4.3
1930	420	401	19	4.5
1931	437	419	18	4.1
1932	550	522	28	5.1
1933	551	526	25	4.5
1934	567†	548	19	3.4
1935	598†	578	20	3.3
1936	576‡	547	29	5.0
1937	668§	630	38	5.7
Totals	6,044	5,758	280	4.6

* Between 1916 and 1921 a total of 325 were examined, of whom 268 passed and 57, 14.4 per cent, failed. Total certificates awarded, 6,026. During this period only one examination for the certificate was given.
† Excluding "referred" examinations.
‡ Excluding 44 referred.
§ Excluding 53 referred.

In 1922, 388 were examined in part I with 20.3 per cent failures, as compared with 1,435 in 1937 with 14.6 per cent failures. In part II in 1922, 109 were examined and 17.4 per cent failed, while, in 1937, 855 were examined and fifty-one failed.

The results of examinations in part III for the sixteen year period 1922 to 1937 inclusive are represented in table 1 reproduced here. In 1937, 668 were examined, as compared with only twenty-two in 1922. Of the number examined in 1937, thirty-eight, or 5.7 per cent, failed. The highest percentage of failures was in 1927, when 293 were examined and twenty-one, 7.2 per cent, failed. During 1937, 630 were granted certificates. In sixteen years 6,044 were examined, of whom 5,758 were granted certificates and 280, 4.6 per cent, failed. Here again a candidate having failed may subsequently receive a certificate.

From 1916 to 1921, when the examination was not given in three parts, 325 were examined, of whom 268 passed and fifty-seven, 14.4 per cent, failed. Altogether from 1916 up to and including 1937, 6,026 certificates have been granted.

The number of persons examined during any one year is given in table 2. The classification as passed or failed, in cases in which more than one examination has been taken in a given year, was based on the results of the last examination during the year in question. For example, if in 1937 a candidate passed part I but later failed part II, he is listed as having failed. Taking this into consideration, there were 2,735 who took at least one of the examinations of the National Board of Medical Examiners during 1937, as compared with 525 in 1922. A total of 27,767 were examined in one or more of the examinations in the sixteen years shown, of whom 21,509 passed, 2,370 failed, 3,888 took incomplete examinations and 9.9 per cent failed.

TABLE 2.—*Parts I, II and III, Excluding Duplications*

	Total Examined	Passed	Incomplete	Failed	Percentage Failed
1922	525	381	58	86	18.4
1923	775	594	79	102	14.7
1924	978	756	69	153	16.8
1925	1,167	915	50	202	18.1
1926	1,161	930	105	126	11.9
1927	1,248	947	142	159	14.4
1928	1,430	1,101	211	118	9.7
1929	1,723	1,280	319	124	8.8
1930	2,044	1,547	322	175	10.2
1931	2,218	1,632	410	176	9.7
1932	2,342	1,850	355	137	6.9
1933	2,277	1,806	280	191	9.6
1934	2,261	1,801	330	130	6.7
1935	2,368	1,831	408	129	6.6
1936	2,515	1,987	353	175	8.1
1937	2,735	2,151	397	187	8.0
Totals	27,767	21,509	3,888	2,370	9.9

Diplomates licensed on the basis of their credentials have increased from only two in 1917 to 559 in 1937, 4,120 having been so licensed since the National Board was created. A total of 6,026, however, have received the certificate of the National Board. In 1937, 559 diplomates were registered on the basis of credentials in forty states, the District of Columbia, Alaska, Hawaii and Puerto Rico.

The certificate of the National Board of Medical Examiners is granted recognition by the licensing boards of forty-two states and Alaska, Canal Zone, Hawaii and Puerto Rico (table 3).

Some of these boards have additional requirements.

Diplomates of the National Board of Medical Examiners are admitted to the final examination given by the Conjoint Examining Boards of England and Ireland and the Triple Qualification Board of Scotland. The certificate is recognized also in South Africa, Spain, Syria and Turkey.

TABLE 3.—*States Endorsing Certificates of National Board of Medical Examiners*

Alabama	Indiana	Nevada	Rhode Island
Alaska	Iowa	New Hampshire	South Carolina
Arizona	Kansas	New Jersey	South Dakota
Arkansas	Kentucky	New Mexico	Tennessee
California	Maine	New York	Utah
Canal Zone	Maryland	North Carolina	Vermont
Colorado	Massachusetts	North Dakota	Virginia
Connecticut	Minnesota	Ohio	Washington
Delaware	Mississippi	Oklahoma	West Virginia
Georgia	Missouri	Oregon	Wyoming
Hawaii	Montana	Pennsylvania	
Illinois	Nebraska	Puerto Rico	

Examinations in parts I and II are held at class A medical schools where there are five or more candidates available, and part III is held in twenty-two established centers throughout the United States.

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SATURDAY, APRIL 23, 1938

MEDICAL EDUCATION AND LICENSURE

Ten years before the Declaration of Independence, the colony of New York enacted a statute, the first of its kind in the New World, fixing professional qualifications for the practice of medicine. It forbade such practice to all who failed to satisfy the legal requirements, namely, a satisfactory examination conducted by the governor of the province, a judge and an officer of his majesty's army. In all our states similar legislation has been adopted. From time to time variations in the precise method of determining the candidate's fitness have been introduced. Once membership in a medical society was proposed as a necessity; another time a diploma from a medical school was required. During the last quarter of the nineteenth century most of the states set up official boards to test by examination the fitness of candidates for medical licensure.

After several years' study the first classification of medical schools by the Council on Medical Education of the American Medical Association, published in 1907, showed that there were many low grade proprietary schools the graduates of which should not even be permitted to take the licensing examination. This conclusion the Carnegie Report of 1910 abundantly confirmed. Although many states have taken steps to exclude the graduates of low grade schools, it is disconcerting to find that after thirty years there are still thirteen states[1] in which graduates of unrecognized institutions are being admitted to practice.

In Arizona the law requires that candidates for medical licensure shall be graduates of schools which maintain standards "not less than those prescribed by the Association of American Medical Colleges." Yet during the past year two licenses were issued to men who did not fulfil the statutory requirement.

Until the new law becomes effective, Massachusetts will continue to admit to examination the holder of a diploma from any legally chartered school. Ninety-six, therefore, from substandard schools have been licensed in this state.

Texas requires standards "as high as those adopted by the better class of medical schools" but nevertheless granted three licenses to persons who could not possibly satisfy the law.

The Virginia law specifies the standard of the American Medical Association or the American Institute of Homeopathy. One physician licensed in 1937 lacked such qualifications.

Nine states which leave it to the discretion of the board to determine whether medical schools are "reputable" or "satisfactory" nevertheless admitted to practice 130 graduates of unrecognized schools.

Laws regulating practice are designed to protect the public from the dangers of ignorance and incompetence masquerading as medical knowledge and skill. In spite of these laws we find that 232 licenses have been granted to those who failed to satisfy any reasonable standard of professional training. Do the laws really protect the people?

1. States Registering Other than Graduates of Approved Medical Schools—1937, this issue, p. 1358.

FEDERAL FOOD AND DRUG BILL ADVANCED

The Committee on Interstate and Foreign Commerce of the House of Representatives reported to the House, April 14, a bill to prohibit, in interstate and foreign commerce and within the District of Columbia, commerce in adulterated and misbranded foods, drugs, diagnostic and therapeutic devices and cosmetics. This bill was offered as a substitute for what was left of the Copeland food, drugs, devices and cosmetics bill, S. 5, passed by the Senate March 9, 1937, after the House committee had stripped it of all provisions relating to advertising. The advertising provisions of the Copeland bill have already been incorporated, in a modified form, in the Wheeler-Lea Federal Trade Commission Act,[1] approved March 21, 1938.

Like the Wheeler-Lea Federal Trade Commission Act, the bill reported by the committee is a composite of provisions to protect the consumer against ignorant and unscrupulous manufacturers and dealers, and of provisions to protect manufacturers and dealers against consumers and law enforcement officers. It may be questioned whether the balance is in favor of the consumer or of the manufacturer and dealer. Foods and cosmetics are covered by the regulatory provisions of the bill more effectively than are drugs and diagnostic and therapeutic devices. The committee itself points out that the Food and Drugs Act of 1906 is greatly weakened by the absence of authoritative definitions and standards of identity for foods. It proposes, therefore, that the Secretary of Agriculture be authorized to promulgate regulations fixing definitions and standards of identity for foods. It believes that this will meet the demands of the legitimate food industry, prevent chiseling operations on the part of some manufacturers and insure fair dealing in the interest of the consumer.

1. Public Law No. 447, 75th Congress, discussed in editorial in THE JOURNAL, April 2, 1938, p. 1112.

However, the committee has not written into its bill a single mandatory definition or standard for a drug or a diagnostic or therapeutic device nor authorized any officer or agency of the government to fix any definition or standard. So far as mandatory definitions and standards for drugs are concerned, the committee's bill is weaker than the law now in force, for it recognizes definitions and standards established by the Homeopathic Pharmacopeia of the United States and supplements to it and to the United States Pharmacopeia and the National Formulary, none of which are now recognized as authorities.

The bill reported by the committee retains the provisions of the Copeland bill that propose to authorize the Secretary of Agriculture to require by regulations that the labels of foods that are represented as having special dietary uses contain such information concerning their vitamin, mineral and other dietary properties as may be necessary to inform purchasers fully as to their value for such uses. It retains, too, the provisions of the Copeland bill authorizing the temporary control of any class of food, originating within a stated area, by a permit system to be established by the Secretary of Agriculture as occasion requires, so as to permit what might be termed a quarantine against foods liable to be contaminated by dangerous micro-organisms, such as Bacillus botulinus. Requirements as to disclosures on the labels of essential ingredients of composite foods are to be waived in favor of proprietary foods, if the committee's bill is enacted, whenever disclosure would give competitors information they could not otherwise obtain, if such ingredients have been disclosed to the Secretary of Agriculture.

The committee has incorporated in its bill provisions designed to prevent danger from the untimely introduction of new drugs. It proposes that no new drug shall be introduced into interstate and foreign commerce or in commerce in the District of Columbia unless an application, filed with the Secretary of Agriculture as required by law, is "effective with respect to such drug." A "new drug" is defined as—

> (1) Any drug the composition of which is such that such drug is not generally recognized, among experts qualified by scientific training and experience to evaluate the safety of drugs, as safe for use under the conditions prescribed, recommended, or suggested in the labeling thereof, except that such a drug not so recognized shall not be deemed to be a "new drug" if at any time prior to the enactment of this Act it was subject to the Food and Drugs Act of June 30, 1906, as amended, and if at such time its labeling contained the same representations concerning the conditions of its use; or
>
> (2) Any drug the composition of which is such that such drug, as a result of investigations to determine its safety for use under such conditions, has become so recognized, but which has not, otherwise than in such investigations, been used to a material extent or for a material time under such conditions.

The exception in subparagraph 1 is apparently to cover secret ingredients in "patent" and proprietary medicines, such as a qualified expert would be unwilling to class as safe. Determination of the safety or danger of any new drug is to be based not on original investigation by the Secretary of Agriculture but on data submitted by the applicant. If the secretary does not reject an application within sixty days after it is filed, it becomes effective as justification or excuse for the commercial distribution of the drug unless the secretary in writing claims an extension of time. In any event, he must reject an application within 180 days from its filing, if he rejects it at all, and if he does not it becomes "effective." The bill proposes that the secretary be authorized to promulgate regulations to permit the distribution of new drugs among qualified experts for the purpose of investigation, without being subject to the restrictions imposed on their distribution generally.

Drugs intended for use by man are to be labeled "Warning—May be habit forming," if they contain alpha eucaine, barbituric acid, beta-eucaine, bromal, cannabis, carbromal, chloral, coca, codeine, heroin, morphine, opium, paraldehyde, peyote or sulfonmethane or any chemical derivative of any such substance, which derivative has been found by the Secretary of Agriculture to be habit forming and so designated. Drugs dispensed on prescriptions of physicians, dentists and veterinarians, however, need not be so labeled and are exempted from such labeling if marked not to be refilled or if refilling is forbidden by law. If a drug is fabricated from two or more ingredients and is marketed under a name not recognized in an official compendium, its label need not bear the common or usual name of each active ingredient if such ingredients have been fully and correctly disclosed to the Secretary of Agriculture or if the drug is dispensed on the written prescription of a physician, dentist or veterinarian.

If the bill is enacted, its provisions will be enforced through cautionary notices, injunctions, seizures and prosecutions. The Secretary of Agriculture is expressly relieved from the duty of instituting proceedings against any one if he believes that the public interest will be served by a written notice or warning. Furthermore, no violation of the act may be reported to any United States attorney for the institution of criminal proceedings until the offender has been given an opportunity to present his views with regard to the contemplated proceeding. No person is to be fined or imprisoned for having received in interstate or foreign commerce any adulterated food, drug, device or cosmetic, and delivered it, if he did so "in good faith," or in commerce in the District of Columbia, if he discloses to the secretary, on request, the name and address of the person from whom he purchased it and gives copies of all pertinent papers relating to the transaction.

The bill reported by the House Committee on Interstate and Foreign Commerce, like the Copeland bill, proposes to strip the Secretary of the Treasury and the Secretary of Commerce of all authority they now have with respect to the promulgation of regulations for the enforcement of the Food and Drugs Act of 1906, except such as the Secretary of the Treasury has over

imports and exports. All other regulatory authority is to be vested in the Secretary of Agriculture. Every United States district court in the country, however, of which there are eighty-three, is given the right under certain conditions not only to declare a regulation promulgated by the secretary to be unconstitutional and void and to restrain its enforcement but to direct the secretary to take such action as the court deems proper in furtherance of justice. This seems to propose an innovation in our judicial system, vesting the district courts with authority to direct an executive officer as to what regulations he shall make. It is likely to prove an obstacle to the early enactment of legislation. Otherwise, the provisions of the bill relating to the procedure to be followed in the promulgation of regulations, borrowed in principle from the Copeland bill, seem to constitute a wholesome restraint on administrative legislation.

Current Comment

OSTEOPATHY OR MEDICINE

Before a select committee of the House of Lords a few years ago the British osteopaths sought to be included in the Medical Register but soon withdrew their request. According to their own witnesses, osteopathy is something independent of medicine which does not rely on the medical sciences for diagnosis and which has no need of any chemical agents in its treatment. In the United States, however, the osteopaths have more and more invaded the practice of medicine. There are now at least half a dozen states in which they are granted unrestricted licenses to practice medicine and surgery, and in many other states similar privileges are being demanded. Obviously, if osteopaths wish to practice medicine they should be willing to conform to the same educational requirements as are demanded of all others who are granted this privilege. Their schools should conform to the same standards. The refusal, however, of the osteopathic schools to permit inspection by the Council on Medical Education and Hospitals inevitably suggests that the claim that these schools teach medicine in all its branches would not bear investigation. Osteopathy is on the spot! Does it, or does it not, include medicine?

SENATOR WAGNER'S RESOLUTION FOR THE STUDY OF MEDICAL CARE

On April 11, Senator Wagner of New York introduced into the Senate of the United States a resolution (S. Res. 265) which was referred to the Committee on Education and Labor. The resolution proposes to authorize the expenditure of $50,000 to be used by a committee of three senators in making a general study, investigation and analysis of the adequacy and cost of medical care in relation to income and ability to pay, and also of ways and means to maintain and improve the health of the people of the United States. The resolution seems to be written right out of the proposals of the so-called Committee of 430 physicians. Thus the resolution suggests that the committee in its investigation include but not limit itself to the following five points, which, for comparison, are placed parallel to the proposals of the Committee of 430:

SENATOR WAGNER'S FIVE POINTS	PROPOSALS OF COMMITTEE OF 430
1. Expansion of federal aid to and cooperation with state and local public health services and the coordination of such services with the work of private institutions and groups.	1. That the first necessary step toward the realization of the above principles is to minimize the risk of illness by prevention. 7. That public health services, federal, state and local, should be extended by evolutionary processes.
2. Extension of governmental aid, by cooperation of state and federal governments, in support of (*a*) adequate medical care for the medically indigent; (*b*) medical education, research, investigations and procedures for raising the standards of practice in preventive and curative medicine; and (*c*) private institutions and groups rendering hospital, laboratory, diagnostic and consultative services to the medically indigent.	2. That an immediate problem is provision of adequate medical care for the medically indigent, the cost to be met from public funds (local and/or state and/or federal). 3. That public funds should be made available for the support of medical education and for studies, investigations and procedures for raising the standards of medical practice. If this is not provided for, the provision of adequate medical care may prove impossible. 5. That public funds should be made available to hospitals that render service to the medically indigent and for laboratory and diagnostic and consultative service. 6. That, in allocation of public funds, existing private institutions should be utilized to the largest possible extent and that they may receive support so long as their service is in consonance with the above principles.
3. Operation of existing public and private health insurance or group health systems, with particular reference to the manner in which they were instituted and are now functioning, the method of financing, the nature and extent of benefits, and the results achieved. 4. Utilization of professional experts in the planning, direction and execution of the foregoing measures. 5. Any other subject, matter, or thing adjudged by the committee to be relevant or germane to the foregoing subjects of inquiry.	8. That the investigation and planning for the measures proposed and their ultimate direction should be assigned to experts.

The Principles and Proposals of the Committee of 430 grew out of the report of the American Foundation Studies in Government. The resolution goes far beyond that report, however, in proposing to have the senators conduct a complete investigation of everything pertaining to medical education and medical service in a period of a few months, and with the expenditure of $50,000. The Committee on the Costs of Medical Care spent about a million dollars over a term of five years and assembled a considerable staff for the purpose of its study. The Commission on Medical Education spent a small fortune over a period of three years. The

National Health Survey employed 7,000 WPA workers and indulged in a tremendous expenditure to reach certain figures, which some statisticians consider inconclusive and doubtful. Right now the American Medical Association is using all the doctors of the country in an investigation of medical needs, with a view to having local determination as to how those needs may be met with the facilities available in each community.

HOW MANY TIMES IS ENOUGH?

In determining the fitness of candidates for medical licensure, the state boards for various reasons rely almost exclusively on written examinations. Now it is obvious that a written examination cannot measure skill. It is, at best, a weak instrument for the selection of those who may be safely granted the right to practice medicine. Surely the examining procedure is unnecessarily degraded when a candidate is permitted to repeat the examination after a dozen successive failures. Massachusetts licensed seventy-seven and New York 189 who had previous failures. In the former state two licensees had each failed thirteen times, four ten times, three nine times, two eight and two seven times each, a total of 123 failures among thirteen candidates. In these two states, 101 physicians were licensed after two or more failures. Is it not time for the people to wake up and put an end to this farce? If the purpose of our professional laws is to safeguard the public, they should be so amended as to impose a reasonable limit to the number of examinations a candidate may attempt.

NEW SEROLOGIC TESTS FOR SYPHILIS

The publications of the Committee on the Evaluation of Serologic Tests for Syphilis indicate that all too frequently both complement fixation and flocculation tests are carried out at a level of efficiency below that of which the tests are inherently capable. It is alarming that some commercial concerns are offering for sale to general practitioners relatively new and unestablished serologic test outfits containing antigen and other materials. The promoters claim that these methods may be carried out by the practitioner in his office, are suitable for rapid diagnostic work with whole blood and with spinal fluid and are sufficiently accurate to guide any physician in the treatment of his patients with syphilis. The fact that the antigens for these methods are crude or that they may deteriorate rapidly is not mentioned. Neither is it pointed out that the dye materials incorporated in the antigens are useless to a trained serologist and will be equally valueless to one not familiar with the interpretation of flocculation reactions. Warning is not given of the danger which is always present in serologic procedures carried out with whole blood or of the complete reversal which inactivation may induce. Nor is it admitted that these methods have had only a limited practical test in hands other than those of the originators. Furthermore, a most grievous omission is the failure to recommend the use of positive and negative control serums as guides in the interpretation of the test. The care of glassware, the concentration and p_H of the salt solution and many other factors requisite for trustworthy serologic results are omitted from the instructions. Thus, active commercial promoters may place in the hands of the individual physician everywhere a diagnostic function which is acceptable as efficient only when performed in laboratories adequately equipped and staffed by trained personnel. The claims for these technics are based on inadequate experience and the procedures themselves are open to criticism on many technical grounds. The science of serology has not as yet progressed to a degree of simplicity at which the detection of syphilis may be placed on a basis comparable to the detection of albumin in the urine. It is difficult to see how any premature steps in this direction can do other than work to the detriment of the patient with syphilis.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ARIZONA

Personal.—Dr. Bernard L. Wyatt, Tucson, has received a medal from the Comité National de Défense contre la Tuberculose in France in appreciation of his tuberculosis work during the World War.

Society News.—A symposium on the diagnosis of bladder neck obstruction was presented before the Maricopa County Medical Society in February; the speakers were Drs. John W. Pennington, Hilary D. Ketcherside, Howard M. Purcell and Mihajlo Matanovitch. Dr. Merriwether L. Day spoke on "Carcinoma of the Prostate." The society was addressed at a special meeting in February by L. E. Detrick, research assistant, University of California, Los Angeles, on "Citri-Culture in Its Relation to Health."

ARKANSAS

District Meetings. — At the semiannual meeting of the Second District Medical Society, at Batesville, April 11, the speakers were Drs. John N. Compton, Little Rock, on "Acute Infectious Diseases" and James E. Jones, Little Rock, "Diarrheas." Dr. Benjamin F. Turner, Memphis, Tenn., addressed a dinner session on "Medicine as a Vocation."——The Third District Medical Society was addressed at its semiannual meeting in Hazen April 7 by Drs. Daniel H. Autry, Little Rock, on "Coronary Artery Disease"; William D. Mims, Memphis, "Practical Aspects of Infant Nutrition and Nutritional Disorders"; Paul Mahoney, Little Rock, "X-Ray Diagnosis of Non-opaque Foreign Bodies in the Air Passages"; John S. Agar, Little Rock, "Diagnostic Bronchoscopy" and "Foreign Bodies in the Food and Air Passages," and Joshua Harley Harris, Memphis, "The High Spots of Sinus Trouble in the Practice of Medicine."

CALIFORNIA

University News.—At the sixth clinical congress of the Alumni Association of the College of Medical Evangelists, Los Angeles, March 20, Drs. John E. Gregory spoke on "Diarrhea and Salt Metabolism"; Dorrell G. Dickerson, "Surgical Treatment of Hypertension"; William H. Olds, "Treatment of Acute Cholecystitis," and Donald C. Collins, "Indications for the Use of Papaverine Hydrochloride in Arterial Emboli."

Carbon Monoxide in Motor Vehicles. — The industrial hygiene service of the state department of public health, in cooperation with the state highway patrol, has been conducting tests on motor vehicles to determine the amount of carbon monoxide to which drivers are exposed. Of 688 drivers tested in the preceding month, according to the bulletin of the state department of health, February 26, the drivers of twenty-four vehicles, or 3.47 per cent, were found to have been exposed to dangerous concentrations of carbon monoxide while operating vehicles on the highway. The investigations are being

conducted by Dr. John P. Russell, Berkeley. A patrolman signals the driver to stop and the physician then accompanies him for a five minute run, testing the floor board of the truck with special instruments.

COLORADO

Annual Spring Clinics. — The Pueblo County Medical Society will present its fifth annual spring clinics in Pueblo April 29-30. The guest speakers on the program will include:

Dr. Carl H. Gellenthien, Valmora, N. M., Diagnosis and Differential Diagnosis of Pulmonary Tuberculosis.
Dr. Stuart W. Harrington, Rochester, Minn., Diagnosis and Treatment of Various Types of Diaphragmatic Hernia.
Dr. George Gill Richards, Salt Lake City, Hypothyroidism Short of Myxedema.
Dr. Edward G. Billings, Denver, Symptoms and Diagnosis in General Medicine.

At the annual banquet Friday evening, James E. Gheen, New York humorist, will be the guest.

DISTRICT OF COLUMBIA

Personal.—*Parents Magazine* recently awarded a medal to Dr. Thomas Parran, surgeon general, U. S. Public Health Service, for outstanding service to children. The citation praised Dr. Parran's work in control of venereal diseases.——Dr. Robert A. Hare, Santa Barbara, Calif., has been appointed medical director of the Washington Sanatorium and Hospital, Takoma Park.

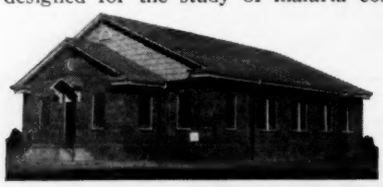
FLORIDA

New Director of Laboratories.—Dr. James N. Patterson, assistant professor of pathology, University of Cincinnati College of Medicine, Cincinnati, has been appointed director of laboratories of the state department of health, Jacksonville, to succeed the late Dr. Paul Eaton. Dr. Patterson graduated at the University of Cincinnati College of Medicine in 1929.

Society News.—The Duval County Medical Society was addressed in Jacksonville March 1 by Drs. Stanley Erwin on "Differential Diagnosis of Painless Jaundice" and Frederick J. Waas, "Indications for Surgery in Gallbladder Disease."——At a meeting of the Jackson County Medical Society in Marianna recently Dr. Rudolph Bell, Thomasville, Ga., presented a paper on "When to Operate for Urinary Calculi."

GEORGIA

The Carter Memorial Laboratory.—The Henry R. Carter Memorial Laboratory of the U. S. Public Health Service, Savannah, was formally dedicated February 8. The laboratory, designed for the study of malaria control, is named in honor of the late Dr. Henry Rose Carter. Dr. Thomas H. D. Griffitts, senior surgeon, U. S. Public Health Service, has been in charge of the laboratory since it was opened in 1937. Situated on a five acre tract owned by the city of Savannah, the building was erected by city and WPA funds while the equipment, costing about $20,000, was financed by the public health service. Dr. Griffitts delivered the dedicatory address and the response was given by Dr. Henry R. Carter Jr., Birmingham, Ala., son of the late Dr. Carter. The senior Dr. Carter graduated as a civil engineer from the University of Virginia in 1873 and as a doctor of medicine from the University of Maryland School of Medicine in 1879. He entered the U. S. Public Health Service as assistant surgeon. For many years he was connected with work on yellow fever. He inaugurated a quarantine system in Cuba in 1899 and from 1904 to 1909 was director of hospitals in the Canal Zone. He was made assistant surgeon general in 1915. In 1914 Dr. Carter's interest turned to the study of malaria and he is credited with conducting the first campaign against malaria in this country. He went to Central and South America as a member of the Rockefeller Foundation Yellow Fever Commission in 1917, was in charge of malaria work 1917-1918, was sanitary adviser to the Peruvian government 1920-1921 and was a member of the Yellow Fever Commission of the International Health Board from 1920 until his death in Washington, Sept. 14, 1925, aged 73.



Carter Memorial Laboratory.

Personal.—Dr. Russell H. Oppenheimer, dean and professor of medicine, Emory University School of Medicine, Atlanta, has been appointed acting superintendent of Grady Hospital, effective March 15. Dr. Oppenheimer succeeds Mr. John B. Franklin, who resigned to accept a similar position at the John D. Archbold Memorial Hospital, Thomasville.——Dr. Harris M. Branham, Brunswick, was recently guest of honor at a dinner to observe his completion of fifty years in the practice of medicine.

IDAHO

Personal.—Dr. Samuel Weissross, Boise, assistant director of public health, has taken charge of industrial hygiene activities and of medical statistics.——Drs. Albert B. Pappenhagen, Orofino, and John Harry Einhouse, Moscow, addressed the North Idaho Medical Society, Lewiston, January 20 on back injuries and cutaneous diseases, respectively.

ILLINOIS

Central States Industrial Meeting. — The nineteenth annual meeting of the Central States Society of Industrial Medicine and Surgery will be held in Springfield May 17 in conjunction with the annual convention of the Illinois State Medical Society. Speakers will include:

Dr. Clarence O. Sappington, Medicolegal Aspects of Occupational Diseases.
Dr. James A. Britton, Recognition of Early Tuberculosis in Industry.
Dr. William D. McNally, The Industrial Solvents.
Dr. Cleveland J. White, Skin Infection in Industry with Special Reference to the Value of Patch Tests.

One session, in conjunction with the surgical section of the state medical society, will be addressed by Drs. Chester C. Guy and Philip H. Kreuscher on "Traumatic Lesions of the Spleen" and "Injuries of the Right Upper Abdominal Quadrant." All speakers are from Chicago.

Chicago

Courses on Obstetrics and Pediatrics. — A series of weekly courses on obstetrics and pediatrics will begin July 5 at the Research and Educational Hospital, University of Illinois College of Medicine, to continue through July and August. The state department of health is offering these courses in cooperation with the educational committee of the Illinois State Medical Society through the facilities of the University of Illinois. The courses in obstetrics will include outpatient dispensary clinics, special lectures, manikin course and home deliveries in the outpatient service; in addition there will be round table discussions. Ward walks and special lectures and service in the outpatient department will make up the courses in pediatrics. Dr. Harold H. Hill, associate in the department of obstetrics and gynecology, University of Illinois College of Medicine, and field consultant in maternal and child hygiene in the state department of public health, is in charge of arrangements.

Society News. — Dr. Erwin O. Strassmann, Rochester, Minn., among others, addressed the Chicago Gynecological Society April 15 on "Technic and Results of Routine Fetal Electrocardiography During Pregnancy."——The Chicago Pathological Society was addressed April 11, among others, by Drs. George J. Rukstinat, Chicago, and Charles G. Weller, Aurora, Ill., on "Spindle Cell Sarcoma of the Prostate Gland."——At a meeting of the Chicago Council of Medical Women April 13, Drs. Helen Holt and Bertha A. Klien spoke on "Role of Vitamins in Ophthalmology" and "Ophthalmoscopic Diagnosis and Differential Diagnosis of Hypertensive and Renal Disease" respectively.——The Chicago Roentgen Society was addressed April 14, among others, by Kenneth Corrigan, Ph.D., Harper Hospital, Detroit, on "Artificial Radioactivity" and Robert S. Landauer, Ph.D., "New Types of High Voltage Generators."——Dr. Philip S. Carney, among others, addressed the Chicago Tuberculosis Society April 14 on "Fallacies in the Handling of Pneumoconiosis Cases."——At a meeting of the Chicago Society of Allergy April 18 the speakers were Drs. Samuel J. Zakon and Samuel J. Taub on "Inhalation of Horse Dander and House Dust as Etiologic Factors in Atopic Dermatitis" and Simon S. Rubin and Theodore B. Bernstein, "Effect of Volume on Absorption of Antigen."——Dr. Wilhelm Dressler, Vienna, will address the Chicago Society of Internal Medicine April 25 on "The Cardiac Aneurysm: Its Diagnosis and Prognosis."

IOWA

State Medical Meeting at Des Moines May 11-13.—The eighty-seventh annual session of the Iowa State Medical Society will be held in Des Moines May 11-13 at the Hotel Fort Des Moines, under the presidency of Dr. Edward M. Myers, Boone. The guest speakers will include:

Dr. Cyrus C. Sturgis, Ann Arbor, Mich., Diseases Associated with Changes in the Red Blood Cells.
Dr. Evarts A. Graham, St. Louis, Thoracic Surgical Diseases.
Dr. Otto Jason Dixon, Kansas City, Mo., The General Practitioner as His Own Otologist.
Dr. Edward N. Cook, Rochester, Minn., Urinary Antiseptics.
Dr. Harry E. Mock, Chicago, Treatment of Craniocerebral Injuries.

Sectional conferences will be held Wednesday and Thursday afternoons and a symposium on operative obstetrics will be held Friday morning with the following speakers: Drs. Everett D. Plass, William F. Mengert, John H. Randall, all of Iowa City; Lawrence E. Kelley, Des Moines; Howard A. Weis, Davenport; Otto N. Glesne, Fort Dodge, and Roy E. Crowder, Sioux City. Dr. Kenneth L. Johnston, Oskaloosa, will be toastmaster at the annual banquet Thursday evening. Rev. Alphonse M. Schwitalla, S.J., dean, St. Louis University School of Medicine, will deliver an address Friday on medical economics. The State Society of Iowa Medical Women will hold its forty-first annual meeting May 11; the speakers will include Drs. Irene A. Koeneke, Halstead, Kan., on goiter; Cora W. Negus, Keswick, epidemic encephalitis, and Rosabell Butterfield, Indianola, alcohol in relation to the human system. The Woman's Auxiliary to the state medical society will meet May 11-12.

KANSAS

Society News.—The Bourbon County Medical Society was addressed in Fort Scott February 14 by Drs. Victor H. Bergmann and Frank M. Postlethwaite, both of Kansas City, Mo., on "Common Dysfunction of the Ovary in Endocrinology" and "Ambulatory Treatment of Diseases of the Rectum" respectively.——Dr. Carl O. Rice, Minneapolis, discussed "The Injection Treatment of Hernia" before the Wyandotte County Medical Society, Kansas City, April 19.

University News.—The Hixon Laboratory for Medical Research at the University of Kansas School of Medicine, Kansas City, has been completed at a cost of $65,000. The laboratory is designed to encourage research work in all departments of the medical school and provides facilities for advanced study in the laboratory and clinical sciences. A short time ago a gift of $45,000 was received by the university to be used for the erection of two additional floors to the building. An original gift of $20,000 and a PWA grant financed the construction of the laboratory.

Venereal Disease Programs.—The first of a series of two day graduate courses on venereal disease control to be given in all of the twelve councilor districts of the state opened in Hiawatha March 24-25 under the auspices of the state board of health and the Kansas Medical Society. Following is the schedule of the courses, which are being financed by the U. S. Public Health Service: Hays, April 4-5; Colby, April 6-7; Emporia, April 13-14; Salina, April 18-19; Hutchinson, April 25-26; Kinsley, May 2-3; Ottawa, May 23-24; Parsons, June 2-3, and Concordia, June 14-15. Dr. Arthur D. Gray, Topeka, is giving the lectures, which are open to all licensed physicians in the state.

LOUISIANA

Society News.—The Eighth District Medical Society was addressed in Marksville March 16 by Drs. Arthur A. Caire Jr. on "Obstetrical Anomalies as Handled in the Home"; Idys M. Gage, "Infections of the Hand"; Julian Graubarth, "Summer Diarrhea in Children," and Stanford Chaille Jamison, "Diseases of the Heart." All are from New Orleans.

Medicolegal Symposium.—The Orleans Parish Medical Society, New Orleans, sponsored a medicolegal symposium March 28 to consider "Relation of the Physician and Surgeon to the Administration of Justice." The following participated:

Hon. Harold A. Moise, judge, civil district court for Orleans Parish.
Hon. William J. O'Hara, judge, criminal district court for Orleans Parish.
Hon. Archibald T. Higgins, associate justice, supreme court of Louisiana.
Hon. George J. Gulotta, assistant district attorney, Orleans Parish.
St. Clair Adams, Esquire, attorney for the Louisiana State Medical Society.

State Medical Meeting in New Orleans May 2-4.—The Louisiana State Medical Society will hold its annual meeting in New Orleans May 2-4, under the presidency of Dr. Charles M. Horton, Franklin. The guest speakers will be Drs. James Barrett Brown, St. Louis, on "Care of Compound Injuries of the Face"; Virgil S. Counseller, Rochester, Minn., "Gynecological Problems Occurring in the Reproductive Period," and Ray M. Balyeat, Oklahoma City, "Common Allergic Manifestations Encountered by the General Practitioner." Louisiana physicians included on the program are:

Dr. George J. Taquino, New Orleans, The Value of Bronchoscopy in Bronchiogenic Carcinoma.
Dr. Isidore Cohn, New Orleans, Burns and Unsolved Problems.
Dr. Stanford Chaille Jamison, New Orleans, Pulmonary Atelectasis.
Dr. Arthur A. Herold, Shreveport, Insulin Allergy with Report of Severe Case and Successful Desensitization.
Dr. Stonewell J. Phillips, Pineville, Insulin and Metrazol Therapy in Dementia Praecox.

The section on public health and sanitation will present a symposium on venereal diseases with Drs. James A. Coleman, Edgar Burns and James K. Howles, New Orleans, as speakers.

MAINE

Society News.—Dr. Roland B. Moore, Portland, addressed the Androscoggin County Medical Society recently on obstetrics; speakers before the society March 17 included Drs. Charles W. Steele and Vincent H. Beeaker, Lewiston, on coronary thrombosis and extrauterine pregnancy, respectively.——Dr. Oramel E. Haney, Portland, discussed diagnosis and treatment of the more common skin diseases before the Portland Medical Club March 1.——Among others, Dr. William J. O'Connor addressed the Kennebec County Medical Association in Augusta, March 17, on "Generalized Carcinomatosis of the Abdomen" and "Glioma of the Spinal Cord." Dr. Edwin H. Place, Boston, discussed contagious diseases.——Dr. Henry R. Viets, Boston, addressed the Cumberland County Medical Society April 22 on "Acute Lymphocytic Meningitis and Other Virus Diseases of the Nervous System."

MASSACHUSETTS

University News.—Dr. Henry A. Christian gave the annual lecture of the Sir William Osler Society of Tufts College Medical Society, Boston, March 18; his subject was "The Fruition of the Clinician."——Dr. Reginald Fitz, lecturer on the history of medicine and university marshal, Harvard University Medical School, Boston, delivered the George W. Gay Lecture on Medical Ethics at the university March 15; his paper was entitled "A Few of the Rules."

Course in Occupational Dermatoses.—The Harvard School of Public Health, Boston, will conduct a course in occupational dermatoses in May. Lectures will be given on the clinical manifestations, etiologic factors, diagnosis, treatment, insurance and legal aspects. Clinics will be held at the Massachusetts General Hospital and various insurance companies. Visits to factories will be arranged so that students may study industrial processes and preventive measures. The number will be limited to ten. Further information may be obtained from the Harvard School of Public Health, 25 Shattuck Street, Boston.

MICHIGAN

Physician Honored.—A bronze plaque showing the profile of Dr. Colin D. Munro, Jackson, was presented to W. A. Foote Memorial Hospital March 15 in his honor and to mark the dedication of the recently completed electric call and signal system at the institution. A member of the staff of the hospital, Dr. Munro was president of the Jackson County Medical Society in 1913 and has served as chairman of the surgical section of the Michigan State Medical Society. He has practiced in Jackson since 1900.

New Health Unit.—Dr. Clarence D. Barrett, East Lansing, director of the bureau of communicable diseases of the state department of health, has been placed in charge of a newly created full time health unit in Ingham County. The unit was to begin operation April 1. Dr. Barrett has served as health officer of Wayne and Lorain counties and the city of Mansfield, Ohio. He has been associated with the Michigan department of health since March 1931. Dr. Filip C. Forsbeck, for six years assistant director of the bureau of communicable diseases of the state department of health, will succeed Dr. Barrett as director.

Society News.—Dr. Cyril K. Valade, among others, addressed the East Side Physicians Association, Detroit, March 17, on "Cutaneous Manifestations of the Eruptive Fevers."——Dr. Sumner L. S. Koch, Chicago, addressed the medical section of the Wayne County Medical Society, Detroit, March 14 on "Injuries of the Hand and Forearm."——Dr. Don W. Gudakunst, state health officer, Lansing, discussed "The County Health Unit" at a meeting of the Washtenaw County Medical Society, Ann Arbor, March 8.——Dr. Oliver W. Lohr, Saginaw, was recently chosen president-elect of the Michigan Pathological Society at a meeting in Ann Arbor and Dr. Ruth C. Wanstrom, Ann Arbor, was installed as president. Dr. William L. Brosius, Detroit, is the secretary.

MISSOURI

Conservation of Eyesight.—The St. Louis County Medical Society and the county health department are sponsoring a program for conservation of eyesight. Public lectures are being given together with a showing of the talking sound film "The House of Vision." Members of the committee in charge of the program include Drs. Clyde P. Dyer, St. Louis, chairman; Alan D. Calhoun, Leslie C. Drews, Alonzo G. Hobbs and Clarence L. Hobbs, St. Louis; William H. Bailey and Walter A. Zeitler, Jennings.

State Medical Meeting in Jefferson City.—The eighty-first annual meeting of the Missouri State Medical Association will be held in the House Chamber, Capitol Building, Jefferson City, May 2-4, under the presidency of Dr. Dudley S. Conley, Columbia. The speakers will include:

Dr. John H. J. Upham, Columbus, Ohio, President, American Medical Association, Clinical Significance of Gastric Motility in the Human Subject.
Dr. George M. Curtis, Columbus, Ohio, The Iodine Metabolism in Thyroid Disease.
Dr. Palmer Findley, Omaha, Puerperal Sepsis.
Dr. Daniel L. Sexton, St. Louis, Intermenstrual Pain.
Dr. Jacob G. Probstein, St. Louis, Diastase Test as an Aid in the Diagnosis of Perforated Peptic Ulcer.
Dr. John McLeod, Kansas City, The Eyes in Congenital Syphilis.
Dr. Dan G. Stine, Columbia, Effect of Work on the Heart.
Dr. Orval R. Withers, Kansas City, Allergy Due to Molds.
Dr. Edward T. Gibson, Kansas City, Traumatic Psychosis.
Dr. Radford F. Pittam, Kansas City, Carotid Denervation in Epilepsy.
Dr. Anthony B. Day, St. Louis, Myasthenia Gravis: Methods of Treatment, with Report of a Case.
Dr. Arthur Lloyd Stockwell, Kansas City, Factors in Determining the Management of Prostatic Enlargement.
Dr. August A. Werner, St. Louis, Obesity and Its Treatment.

A round table will be held by the maternal welfare committee at which Dr. Findley will present a "Critique of Submitted Maternal Death Reports." Entertainment will include golf, skeet and bowling tournaments and a stag dinner Monday evening with the Cole County Medical Society as host.

NEBRASKA

Society News.—Judge E. B. Chappell, Lincoln, addressed the Lancaster County Medical Society, Lincoln, March 1, on "The Doctor in Court" and Dr. Edna W. Schrick on "Functional Dysmenorrhea."——At a meeting of the Madison Six County Medical Society in Norfolk March 1 the speakers, all of Omaha, were Drs. Esley J. Kirk, on nephritis; Harrison A. Wigton, minor psychosis; Abraham S. Rubnitz, pathology of blood, and Robert D. Schrock, who gave a fracture demonstration.——Drs. Harry H. Everett and Harry E. Flansburg, Lincoln, addressed the Filmore and Saline County Medical Society, Crete, March 3, on pulmonary tuberculosis and pulmonary embolism, respectively.——At a meeting of the Southwest Nebraska Medical Society in McCook, March 17, the speakers, all of Denver, were Drs. James E. Russell Jr. on "Jaundice in the Newborn"; Clarence B. Ingraham, "Embryonal Tumors of the Ovary," and William C. Black, "Pathology Relative to Ovarian Embryonal Tumors."

NEW YORK

Report of Cancer Commission. — The commission appointed in 1937 to survey the prevalence of cancer in the state and facilities for treatment has made a report to the governor and the legislature and recommended continuation of the work for another year to permit completion of its studies. Chief of the commission's recommendations were reorganization and extension of the division of cancer control in the state department of health and changes in the public health law to make cancer a reportable disease. Among other points brought out in the report were that facilities for diagnosis of cancer are lacking in hospitals of less than 100 beds, facilities for roentgen treatment are insufficient to carry the minimum treatment load, radium is poorly distributed especially in the central area of the state, accommodations for terminal care of the cancer patient are inadequate for the indigent and upstate New York is suffering from a serious deficiency in treatment facilities. The commission recommended that, at least for the present, development of cancer control be away from centralization and in the direction of improved care in already existing local public and private hospitals. The division of cancer control is under the direction of Dr. Burton T. Simpson, director of the State Institute for the Study of Malignant Diseases, at Buffalo. Under the commission's recommendations an office would be set up for the director of the division with an adequate and competent staff and an initial appropriation of $50,000 a year. The legislature appropriated $15,000 for the commission's work during the coming year.

New York City

Harvey Lecture.—Fred C. Koch, Ph.D., professor of biochemistry, University of Chicago, delivered the seventh Harvey Lecture of the current series at the New York Academy of Medicine April 21 on "The Chemistry and Biology of Male Sex Hormones."

Annual Art Exhibit.—The eleventh annual exhibition of the New York Physicians' Art Club will be held at the New York Academy of Medicine, 2 East One Hundred and Third Street, May 9-21. Paintings and work in the graphic and plastic arts by members of the medical profession will be shown. Dr. Henry A. Bancel is president and Dr. James R. Gudger secretary of the club.

Personal.—David H. McAlpin Pyle was recently reelected president of the United Hospital Fund for the fourth successive term.—— Dr. Jacob J. Golub, executive director of the Hospital for Joint Diseases, has been appointed by Governor Lehman to the Saratoga Springs Authority.——The William H. Nichols Medal for chemical research was presented to Dr. Phoebus A. Theodore Levene of the Rockefeller Institute for Medical Research by the New York Section of the American Chemical Society at a dinner March 11. Announcement of the award was made in THE JOURNAL, Dec. 11, 1937, page 1994.——Dr. Herman J. Burman has been appointed director of the department of otolaryngology at the Harlem Hospital.

NORTH CAROLINA

Society News.—A symposium on roentgen therapy was presented before the Buncombe County Medical Society, Asheville, March 21, by Drs. Gibbons W. Murphy, who discussed treatment of infections; John D. MacRae, endocrine disorders, and Seba L. Whitehead, dermatology.——At a meeting of the Catawba Valley Medical Society, Lincolnton, March 15, the speakers were Drs. Abner M. Cornwell, Lincolnton, on "Diverticulitis of the Sigmoid Colon"; Daniel N. Stewart Jr., Hickory, "The Clinical Value of Electroradiography," and Edward W. Phifer, Morganton, "Surgical Problems."——Drs. Ivan M. Procter, Raleigh, and Coy C. Carpenter, Wake Forest, addressed the Robeson County Medical Society March 3 on cancer of the breast.——Dr. Ellis B. Gray, Spartanburg, S. C., addressed the Rutherford County Medical Society in February on "Complications of Otitis Media."——Dr. William B. Dewar, Raleigh, addressed the Johnston County Medical Society, Smithfield, in March on recent advances in medical therapy.

OHIO

New Executive Secretary in Toledo.—Mr. George W. Cooley, Toledo, has been appointed executive secretary of the Toledo Academy of Medicine to succeed Mr. Henry C. Gerber Jr., who resigned to become executive secretary of the Michigan State Dental Society. Mr. Cooley is a graduate of the school of business administration of the University of Cincinnati. Mr. Gerber had been with the academy since 1930.

Practitioners Honored. — The Morrow County Medical Society sponsored a luncheon in honor of Dr. Frederick E. Thompson, Marengo, March 8, marking his completion of fifty years in practice.——Dr. James Owen Howells, Bridgeport, was honored by the Belmont County Medical Society with a banquet in Bellaire, marking his seventy-fifth birthday February 17. Dr. Howells described changes in medical practice during the past forty years; the society gave him a watch.

PENNSYLVANIA

Graduate Assembly.—At the third graduate assembly of the year at Geisinger Memorial Hospital, Danville, April 7, the following were guest speakers: Drs. Russell M. Wilder, Rochester, Minn., on "Diagnosis and Treatment of Addison's Disease"; Louis H. Clerf, Philadelphia, "Mechanism of the Production of Physical Signs in Diseases of the Lungs," and Roy W. Scott, Cleveland, "Clinical Aspects of Arteriosclerosis." The assemblies are sponsored by the Montour County Medical Society.

Philadelphia

Dr. Rowntree Receives Strittmatter Award.—Dr. Leonard G. Rowntree, director of the Philadelphia Institute for Medical Research at the Philadelphia General Hospital, received the annual Strittmatter Award, a gold medal, of the Philadelphia County Medical Society at a meeting April 13 for his work on the thymus gland, cancer and arthritis. Dr. Rowntree was appointed to the Philadelphia Institute in 1932. Previously he had been on the faculties of Johns Hopkins University, Baltimore, and the University of Minnesota, Minneapolis, and on the staff of the Mayo Clinic, Rochester, Minn. He was unable to attend the meeting because of illness. After the presentation the society heard a symposium on fever therapy given by Drs. Frank H. Krusen, Rochester, Minn.; Joel J. White, commander of the U. S. Naval Hospital at Philadelphia, Ferdinand Fetter and Truman G. Schnabel. Dr. Isidor P. Strittmatter, founder of the award, died the day after this presentation.

Society News.—A symposium on sciatic pain was presented at a meeting of the Medical League of Philadelphia, March 28, by Drs. John B. Roxby, Melvin W. Thorner and Robert A. Groff.——Speakers at a meeting of the Laennec Society

March 29 included Drs. Samuel Bellet, on "Tuberculous Pericarditis" and Moses Behrend, "Hodgkin's Tumor of the Anterior Mediastinum and Anterior Chest Wall."——Dr. John O. Bower addressed the Philadelphia Academy of Surgery April 4 on "When Should the Secondary Operation—Appendectomy—Be Performed Following Simple Drainage of an Appendiceal Abscess?" and Dr. Robert H. Ivy on "Multiple Dentigerous Cysts, with Special Reference to Occurrence in Children of the Same Family."——Drs. Arden Neil Lemon and Robert H. Ivy, among others, addressed the Philadelphia Laryngological Society April 5 on "Use of Undenatured Bacterial Antigen in Chronic Suppurative Sinusitis" and "Tumors and Cysts of the Jaw" respectively.——Dr. Charles H. Best, Toronto, delivered a Hatfield Lecture of the College of Physicians of Philadelphia April 6 on "Heparin and Thrombosis."——Drs. John V. Blady and Alfred F. Hocker, New York, among others, addressed the Philadelphia Roentgen Ray Society April 7 on "Sialography—Its Technic and Application in the Diagnosis of Diseases of the Parotid Gland."——Dr. George S. Sprague, White Plains, N. Y., among others, addressed the Philadelphia Psychiatric Society April 8 an "Proposed Classification of the Fields of Psychiatry."

VIRGINIA

McGuire Lectures and Centennial Symposium. — The Stuart McGuire Lectures delivered annually at the Medical College of Virginia, Richmond, will be combined this year with the fourth and final symposium celebrating the college's centennial, April 28-30. The program is as follows:

Dr. George R. Minot, Boston, Etiology and Treatment of Anemia: Nutritional Deficiencies.
Dr. Oliver H. Perry Pepper, Philadelphia, A Survey of the So-Called Hemolytic Anemias.
Harvey E. Jordan, Ph.D., Charlottesville, Blood Formation in Birds with Special Reference to the Evidence for a Genetic Relation Between Lymphocytes and Erythrocytes.
Dr. Nathan Rosenthal, New York, Leukemoid Reactions in Various Diseases.
Dr. Alexis F. Hartmann, St. Louis, Some Clinical Studies of Subjects with Change in Their Acid-Base Balance.
Dr. Edward D. Churchill, Boston, Principles of Surgical Treatment of Hyperparathyroidism.
Dr. Harvey B. Stone, Baltimore, Transplantation of Parathyroid Glands.
Dr. Walter Bauer, Boston, The Nature of Degenerative Joint Disease (Hypertrophic Arthritis).

GENERAL

New Health Council Officers.—Ira V. Hiscock, C.P.H., professor of public health, Yale University School of Medicine, New Haven, Conn., has been elected president of the National Health Council, succeeding Dr. Donald B. Armstrong, New York. Dr. Charles Walter Clarke, New York, executive director of the American Social Hygiene Association, was chosen vice president and Miss Dorothy Deming, New York, general director of the National Organization for Public Health Nursing, secretary.

Phillips Medal Awarded. — The John Phillips Memorial Medal of the American College of Physicians was awarded to Dr. Harry Goldblatt, professor of experimental pathology, Western Reserve University School of Medicine, Cleveland, at the annual session in New York, April 6, for his work on the production of experimental hypertension in animals. Dr. Goldblatt took his medical degree at McGill University Faculty of Medicine, Montreal, in 1916. He has been a member of the Western Reserve faculty since 1924.

National Academy of Sciences.—The spring meeting of the National Academy of Sciences will be held in Washington, D. C., at the academy's building April 25-26. Papers of medical interest will include:

Robley D. Evans and Robert S. Harris, Cambridge, Mass., Studies in Radium Poisoning: The Metabolic Effects of Ingested Radium in Rats.
Drs. Florence R. Sabin and Austin L. Joyner, New York, Cellular Reactions in Sensitization.
Dr. Eugene F. DuBois and James D. Hardy, New York, Relationship of Humidity to Evaporation of Sweat.
Harvey Fletcher, Ph.D., Flushing, N. Y., The Mechanism of Hearing as Revealed Through Experiments on the Masking of Thermal Noise.

Dr. James Ewing, New York, will deliver a lecture Tuesday evening on "The Public and the Cancer Problem."

Criteria for Accrediting of Nursing Schools. — At a recent meeting of the executive committee of the committee on accrediting of the National League for Nursing Education, it was decided to spend several months in developing criteria for the accrediting of nursing schools. Through data collected, the committee expects to define certain principles that will serve as a guide in the making of surveys in the future and in the accrediting of schools. Application of the criteria thus developed are to be tested in different types of schools in various geographic areas. It was pointed out that eligibility for accrediting will be based on the characteristics of the school as a whole and that no school will be rejected for one or two deficiencies, provided the general quality of performance is acceptable. The committee listed among its aims helping administrators to improve their schools, publication of a list of accredited schools to guide prospective students in their choice of schools of nursing and promoting interstate relationships in the professional registration of nurses.

Meeting of Gastroenterologists.—The forty-first annual meeting of the American Gastro-Enterological Association will be held at the Hotel Claridge, Atlantic City, N. J., May 2-3. The speakers will include:

Dr. Boris P. Babkin, Montreal, Canada, The Triple Mechanism of the Chemical Phase of Gastric Secretion.
Dr. Earl D. Bond, Philadelphia, Psychiatric Contributions to the Study of the Gastrointestinal System.
Dr. William C. MacCarty, Rochester, Minn., Early Cancer of the Stomach and Its Clinical Significance.
Dr. Warren H. Cole, Chicago, The Etiological Relationship of Lesions of the Cystic Duct to Cholecystic Disease.
Dr. James B. Collip, Montreal, Canada, The Endocrines in Relation to the Gastrointestinal Tract.

Dr. William R. Houston, Austin, Texas, will address the annual banquet on "Our Relations with the Orient" and Christopher Morley, New York author, "Change Without Notice."

FOREIGN

Society News.—An International Congress of Cosmobiology is being organized to be held in Nice June 2-6, under the auspices of the Medical Society of Climatology and Hygiene of the Mediterranean Coast in cooperation with the International Association for the Study of Solar Radiation, Terrestrial and Cosmic. A detailed program will be sent on request to the president of the Mediterranean Coast medical society, Dr. Maurice Faure, 24 rue Verdi, Nice, France. Drs. William Bierman, New York, and Disraeli Kobak, Chicago, are physician members of an American committee established to support the congress. Information may be obtained from Miss Edna Minsky, 120 East Thirty-Seventh Street, New York, secretary of the committee.——The sixteenth International Red Cross Conference will be held in London in June. A special feature will be an observance of the seventy-fifth anniversary of the founding of the Red Cross movement.——The International Association of Thalassotherapy will hold its eighth international congress at Montpellier-Palavas, France, June 3-6. Subjects to be discussed are tuberculous peritonitis and meteorologic factors of the sea climate. For information apply to the organization committee, 6 rue André-Michel, Montpellier, France.

Government Services

Examination for Appointment in Navy Medical Corps

An examination of candidates for appointment as lieutenants (junior grade) in the Medical Corps of the U. S. Navy will be held at all naval hospitals in the United States and at the Naval Medical School, Washington, D. C., beginning May 16. Candidates must be between the ages of 21 and 32 at the time of appointment, graduates of class A medical schools and must have completed an internship of one year in a hospital accredited for interns by the American Medical Association and the American College of Surgeons. Information may be obtained from the Surgeon General, U. S. Navy, Bureau of Medicine and Surgery, Navy Department, Washington, D. C.

New Assistants to Surgeon General

Col. Roger Brooke, medical corps, commanding officer of Letterman General Hospital, San Francisco, has been appointed assistant to Dr. Charles R. Reynolds, surgeon general of the U. S. Army, with the rank of brigadier general. Lieut. Col. Leigh Cole Fairbank, dental corps, General Dispensary, Washington, D. C., received a similar appointment and is the first dental officer ever to be appointed to the rank of brigadier general. As assistant to the surgeon general he will supervise the work of the army dentists.

CORRECTION

Effects of Alcohol.—In the article by Sydney Selesnick in THE JOURNAL, March 12, page 775, appeared an illustration unfortunately without due acknowledgment to the original artist. Dr. Selesnick informs us that by an oversight acknowledgment of the source of original publication of the illustration was omitted. The drawing from which the illustration was adapted appeared first on page 136 of "Alcohol and Man" (New York, Macmillan Company, 1932) in chapter VI, on the human toxicology of alcohol by Emil Bogen, Ph.D.

Foreign Letters

LONDON

(From Our Regular Correspondent)

March 25, 1938.

Medical Research in England

In the annual report of the Medical Research Council for 1936-1937 the government is said to have provided an additional $150,000 for research with special reference to chemotherapy. The success of sulfanilamide shows that chemotherapy can be useful in bacterial diseases, as it has been in protozoal and spirochetal diseases. So far the chief role of chemotherapy has been in tropical diseases of men and animals and it has depended on German science and industry almost entirely, the most notable exception being tryparsamide for trypanosomiasis, which is of American origin. Yet several fundamental discoveries in chemotherapy have been made in England. In 1904 Thomas and Breinl first demonstrated the trypanocidal action of atoxyl, an organic arsenical compound. In 1907 Plimmer and Thomson discovered the trypanocidal action of antimony and potassium tartrate, and the value of this drug in bilharziasis was established by British workers. These discoveries initiated intensive research for compounds superior to the original ones, but this was carried out abroad. In Germany, where research in chemotherapy has been so successful, it has been carried out by manufacturing firms who employ hundreds of chemists and persevere for a decade or more before achieving a result susceptible of commercial development. British firms cannot do this without government support. The matter is more serious than one of prestige, for in the event of war the British Empire might find itself deprived of essential drugs. It is proposed to set up a central research laboratory with a staff giving its whole time to some laborious research and also to assign work to different academic centers. The scheme will differ from the German method in that it will not aim salely at financial success.

SULFANILAMIDE AND RELATED COMPOUNDS

The great value of sulfanilamide in puerperal sepsis was established at Queen Charlotte's Hospital, London, by Colebrooke of the council's staff and by others. The case mortality has been reduced to 5.5 per cent, against 22.7 per cent before the use of the drug. Another striking result is that after the treatment has been begun the infection has usually ceased to extend, so that there has been a great reduction in the incidence of peritonitis and a similar reduction in the development of palpable pelvic or pelvic-abdominal inflammatory masses. A similar reduction in the mortality of puerperal sepsis in London as a whole, from an average of 1.57 per thousand births to 0.75, has been observed. Benefit in other streptococcic infections has also been recorded, particularly in erysipelas and streptococcic meningitis. Animal experiments indicate that sulfanilamide also has curative effects in infections by meningococci, typhoid and other coliform bacteria, in dysentery and, somewhat less impressively, in infections by pneumococci and staphylococci. But it is too early yet to assess the value in human cases. In B. coli infections of the genito-urinary tract sulfanilamide bids fair to replace mandelic acid.

THE INFLUENZA VIRUS

The characteristic virus of influenza was obtained in throat washings from patients during the 1933 epidemic. A report to be published by the council points to the conclusion that in man influenza is a recognizable clinical entity, differing in symptoms and in epidemiologic character from other catarrhal infections of the respiratory tract. A means of differentiation by clinical examination alone would be an important advance. Dr. Stuart Harris showed that, whereas the onset of epidemic influenza is usually sudden, the onset of febrile catarrh is often insidious; that in influenza constitutional symptoms predominate, while in febrile catarrh respiratory symptoms are the most common; that the cough in influenza is short and dry, while in febrile catarrh it is most often paroxysmal, irritating, painful and productive. These studies have clarified the problem but they do not provide the physician with a certain method of differential diagnosis by clinical examination alone. In the 1936-1937 epidemic, 600 soldiers were vaccinated against influenza by means of an inactivated virus but the results were inconclusive. However, the vaccination was shown to be harmless and it caused the appearance in the blood of antibodies to the virus.

Vitamin B Deficiency

At the Royal Society of Tropical Medicine and Hygiene a discussion took place on vitamin B deficiency. Prof. R. B. Hawes confined himself to acute beriberi in which the patients were desperately ill, vomiting, breathless and groaning with epigastric pain. They were often pulseless, with enlarged hearts and a pulse rate of from 120 to 130. The use of large doses of vitamin B produced a series of reactions which were unique and altered many current ideas. The vitamin must be given by injection and the effect of one injection lasted for many weeks. Clinical improvement occurred before any alteration was apparent in the blood pressure, which was usually noticed in the second hour or later. Then the diastolic pressure rose, in many cases to well above normal, and the peripheral arteries palpably stiffened. Pure vitamin B deficiency had no relation to any anemia.

Prof. A. R. Peters stated that the first symptom of vitamin B deficiency in animals was lack of appetite, which was followed by loss of weight. When the weight had fallen to 65 per cent of the maximum possible, terminal symptoms—decreased sugar tolerance and nervous symptoms—appeared. In pigeons, opisthotonos developed. Changes in temperature also occurred and there was usually lack of vision and bradycardia. Sometimes there was edema. Cure took place rapidly when the vitamin was given. The symptoms of vitamin B deficiency were mixed up with those of general inanition, but it was now possible to separate the two.

Dr. B. S. Platt said that there were substances normally present in human blood which bound bisulfate and were increased in fulminating beriberi. Pyruvic acid was one of these and normal levels were restored in ten or fifteen hours after intravenous administration of 5 mg. of vitamin B. He called attention to accentuating factors which might be more important in the development of the various clinical types of beriberi than the grade of vitamin B deficiency. These were fever, increased intake of carbohydrates and muscular effort. They affected metabolism and led to accumulation of pyruvic acid in the blood in states of vitamin B deficiency.

British Physicians and Their Austrian Colleagues

In a joint letter to the medical press, Lord Horder, Sir Arthur Hurst, Prof. J. A. Ryle, Dr. Robert Hutchison, Dr. E. P. Poulton, Prof. W. H. Wynn and other leaders of the profession have expressed alarm at the possible fate of their colleagues in Austria. They state that there are in that country many revered physicians and surgeons who are likely to fall into disfavor with the national socialist government either on account of their medical or social views or on account of belonging to the Jewish race. Judging from what has happened in Germany, they are afraid that serious discrimination will be exercised against these physicians. The signatories beg their colleagues in all countries to watch the progress of events with the closest attention and to do all in their power, whether by public protest or by public or private assistance, to stand by any members of our profession who may suffer hardship under the new régime.

Radium Needles Recovered in Cinder Track After Eight Years

Physicians experimenting with a neon tube radium detecter (named "the hen" because of the clucking sound produced) have discovered in the grounds of the Royal Victoria Infirmary, Newcastle-on-Tyne, eight milligram needles of radium which were lost eight years ago. They were left in used dressings by mistake, passed through the incinerator, and afterward became embedded with clinkers in a cinder track. A few days after the loss physicians searched the track, but with the comparatively crude instruments then available they recovered only a minute particle of radium and gave up hope of finding the rest. Recently the new instrument for detecting radium was purchased. It necessitates the use of head phones, with which the physicians have for some days been searching the track. The nearer the radium, the faster the clucking. The value of the radium recovered was $600.

PARIS

(From Our Regular Correspondent)

March 26, 1938.

Medical Examination of All Chauffeurs

For years the medical examination of chauffeurs of motor trucks and public conveyances has been obligatory in France. The extension of this requirement to conductors of all types of motor vehicles resulted in the appointment of a committee by the Académie de médecine, the leading medical organization of France. At the February 22 meeting the committee recommended the application of obligatory medical examination to every one who drives an automobile. Prof. Henri Claude raised the question as to whether such an obligatory medical examination should include only those who had already been granted a license without such an examination or whether only present and future applicants for licenses to drive passenger automobiles should be compelled to submit to a medical examination. Of 2,678,000 automobiles in use during 1937, less than a million were motor trucks and busses. In addition there were 510,000 motorcycles in daily use. This means that, if the proposed law is to be applied to all those who possess driving permits for passenger cars and motorcycles, it would be necessary to examine over two million individuals, a huge task for physicians to undertake. There were 464,923 applicants for permits to drive all types of motor vehicles during 1937. Professor Claude stated that only a small proportion of automobile accidents are due to any defects of a pathologic character which a medical examination of drivers of passenger vehicles could prevent. From reports of the state constabulary it appears that only 0.74 per cent of accidents are the result of physical disability on the part of drivers. The majority of accidents occur because the driver suffers from some nonclassifiable mental or nervous disturbance. These individuals have a tendency to lose their self control, are often of an excitable, unstable temperament and drive at excessively high speeds. It is very difficult for any medical examiner to detect such psychic disturbances. The only solution would be to oblige such an individual, following an accident for which he is responsible, to be examined as to mental and physical defects with the object of refusing a license to drive in the future. Professor Claude did not question the necessity of a medical examination to detect cardiovascular lesions, disturbances of sight or hearing, alcoholism and intercurrent diseases. Prof. Georges Guillain, neurologist, said the fact that there was such a large number of drivers of passenger automobiles ought not to serve as an obstacle to their examination. A driving license should never be granted without a medical examination. He knew more than thirty persons who suffered from a major form of epilepsy but who had been granted driving licenses, in spite of the fact that the authorities had been notified of the danger. He also knew persons suffering from paraplegia, hemiplegia and mental defects who were driving automobiles. There is absolutely no reason why a medical examination of all chauffeurs should not be obligatory in France.

Symposium on Chemotherapy in Gonorrhea

The February 11 meeting of the Société de médecine of Paris was devoted to the discussion of the value of chemotherapy in the treatment of gonorrhea. The first paper was read by Professor Levaditi, who believes that the newer preparations do not act like ordinary antiseptics but undergo marked transformation in the body. The various drugs like sulfanilamide are of much less value in the chronic than in the acute forms of gonorrhea. When given alone, it is necessary to employ such large doses that systemic complications are likely to appear; hence these newer drugs can be regarded only as adjuvants to local methods, such as lavage. Dr. Marcel Pinard and his co-workers reported excellent results in acute cases, the percentage of cures in from three to four days being high. No other treatment was given in these acute cases. Dr. Sauphar disagreed with the preceding observations as to the efficacy of sulfanilamide and similar drugs in acute cases and said that we have still much to learn, wherefore the older methods should not be abandoned. It is unfortunate that the indiscriminate sale by druggists of these newer remedies permits many patients to try to treat a case of acute gonorrhea without proper medical supervision as to when a cure has taken place. This aspect of the question is an important one from the standpoint of spread of the infection. Dr. Lavenant stated that the best results are observed in subacute and chronic cases. However, large doses are apt to be followed by complications such as asthenia, anemia and leukopenia. Much smaller doses can be given if chemotherapy is combined with lavages. Dr. Marcel reported the cure of the majority of seventy acute cases of prolonged duration, with and without complications. He also called attention to the necessity of not allowing the indiscriminate use of these newer drugs, the doses recommended by pharmaceutic houses being usually much higher than safe or necessary. Dr. Barbellion said that a combination of local treatment and chemotherapy had given 85 per cent cures in 120 subacute and chronic cases. Systemic symptoms, in the form of a tired feeling, pallor and occasionally cyanosis, had been frequently noted. Chemotherapy should not be used indiscriminately for every case of gonorrhea. The dose of sulfanilamide and similar preparations should never exceed 3 Gm. a day. Every patient should be seen daily in order to control the action of these newer preparations adequately. The use of sulfanilamide in the various forms of tuberculosis was recommended by Dr. Marcou. It was efficacious only in cases of mixed infection, especially tuberculous diseases of the skin, bones and viscera.

Suicide Resembling a Laboratory Experiment

At the February 14 meeting of the Société médicale des hôpitaux a case was reported by Profs. A. Lemierre and P. Ameuille which is unique. A foreign physician aged 29, who came to France six years ago to study bacteriology, was seen April 23, 1932, complaining of headache and general malaise of six days' duration. The temperature during this period varied from normal to 105 F. The hemoculture, blood count and physical examination were negative. The patient stated that at the age of 21 a diagnosis of pulmonary tuberculosis had been made but no bacilli had been found. An epidermal tuberculin test, however, was positive a few months before the onset of the present illness. There was a history of tuberculosis in the family. The case was puzzling until it was ascertained that the patient had been depressed and that in the effort to commit suicide had injected 2 cc. of an emulsion of living tubercle bacilli intravenously, the day the first symptoms of his present illness appeared. The emulsion contained about 1 mg. of tubercle bacilli per cubic millimeter. With this information to work on, a blood culture by the Lowenstein technic was made for tubercle

bacilli but was negative. The same was true of two guinea pigs inoculated intraperitoneally with the patient's blood. No tubercle bacilli were found in the urine. The condition remained stationary from April 27 to May 19, the chief symptom being a feeling of fatigue. The x-ray examination of the chest May 19, thirty-two days after the inoculation, revealed multiple small shadows over both lungs, such as are seen in incipient cases of acute miliary pulmonary tuberculosis. There was an absence of any changes to be elicited on physical examination, and no tubercle bacilli were found in the scanty expectoration. Beginning about May 19 the temperature curve was of the remittent type, rising as high as 104 F. toward evening. A second x-ray examination July 2 revealed far more advanced changes, characteristic of an acute miliary tuberculosis. Five days later, rigidity of the neck and a positive Kernig sign were noted. Death took place July 14, about three months after the inoculation. A necropsy was not made. Such a primary localization in the lungs and secondary localization in the meninges is frequently observed in acute miliary tuberculosis. The case is of interest because the question arises of reinfection in patients who present a positive epidermal tuberculin reaction.

BERLIN

(From Our Regular Correspondent)

Feb. 28, 1938.

Treatment of Late Effects of Poliomyelitis

The Berlin Medical Society recently discussed the treatment of the late effects of acute anterior poliomyelitis after a lecture by Dr. B. Kreuz. For about one and one-half years following the acute state one may anticipate spontaneous remission of the crippling. During this period exercise therapy should be begun to prevent atrophy of disuse in the still healthy musculature; underwater exercises are particularly beneficial. The goal of exercise therapy must be to have the patient ambulant in from six to eight weeks. If this is to be achieved, one should not hesitate to utilize reenforced partial molds for the limbs, and similar appliances. Care should be taken that the patient is subsequently freed from habituation to the appliance. Possible contractures are also removed during this one and one-half year period exercise therapy. Only at the end of this period should orthopedic surgical measures, if necessary, be introduced. Not a great deal may be expected of the latter. The muscle most utilized in plastic operations is the extensor hallucis longus. Plastic operations are undertaken after all possible deformities and contractures have been presumably corrected. For cases in which muscle plastic operations are not practicable, arthrodesis may bring about favorable results. Treatment of the upper arm by this method has occasionally been beneficial. Operations on the lower extremities should not be performed unless the surgeon feels confident that the fixation of the joint will not prevent the exercise of the patients' chosen occupation, if he has one. If his working capabilities are to be safeguarded, the crippled patient should receive careful and competent vocational guidance.

The Heritability of Metabolic Disorders

Dr. A. Boeger of the First Medical Clinic of Munich University has published a study of the heritability of metabolic disorders. A fundamental consideration in dealing with this problem is the fact that disturbances of metabolism are quite frequently based on constitutional defects. The latter in turn are the result not only of inherited anomalies but of environmental influences as well. To be sure, one set of factors or the other may remain definitely in the background in certain cases. In a vast number of persons obesity is based on excessive intake of food and insufficient exercise; occupation may also be a factor, as among cooks and hotel keepers. Endogenous obesity, on the contrary, has its etiology in an autonomous diminution of metabolism. In such cases the person lays on excessive fat despite a dietary that normally would not increase the body weight. Therefore, only obesity of the endogenous type is heritable. Inherited modifications of certain endocrine glands or of the mesencephalon are also capable of producing the condition. Among diabetic patients the number of those who have inherited the disorder fluctuates between 15 and 35 per cent. Congenital deficiency of Langerhans' cells will always be a telling factor in the manifestation of diabetes. Possible exogenous factors in the etiology or liberation of diabetes are alcoholism, arteriosclerosis and overnourishment. The complete clinical picture of exophthalmic goiter is based on both a hereditary predisposition and environmental influences, among the latter fright, overwork, iodine and so on. Inherited disturbances of the sympathetic nervous system are often recognized early; whether the genetic character is dominant or recessive has not yet been determined. In cases of gout, egregious familial diatheses marked by hyperergic conditions of various kinds are observable; a study of the relatives often reveals asthma, vasomotor rhinitis, migraine and urticaria. Besides, the importance of exogenous factors in the pathogenesis of gout are well known. Alkaptonuria and cystinuria are doubtless heritable anomalies of metabolism, but these conditions are not of any great practical significance since they usually run an asymptomatic course. It is a surprising fact that persons affected with the last named disorders often present a familial history of intermarriage.

The Heart in Cases of Pulmonary Embolism

Prof. C. Kroetz and his co-workers reported their observations before the Hamburg Medical Society, stressing the demands made on the heart and coronary vessels by pulmonary embolism and pneumothorax. Accordingly there are no signs of a functional coronary insufficiency in pulmonary embolism. The hearts of twelve patients who had died of pulmonary embolism showed no fresh ischemic necrosis of the myocardium on serial section. If infarcts and cicatrices of infarction were present, they were plainly conditioned by a thrombotic occlusion of the vessel, which antedated the pulmonary embolism. Accordingly, the concept of a pulmocoronary reflex as the cause of precordial pain and danger to the heart in cases of pulmonary embolism is deprived of any anatomic basis. Electrocardiographic variations registered following pulmonary embolism cannot be interpreted as signs of functional coronary insufficiency. These newer concepts were verified by experiments on animals. In dogs no electrocardiographic coronary signs were demonstrable in connection with repeated pulmonary embolism; only with myocardial degeneration did alterations appear in the electrocardiogram. The coronary vessels become constricted following pulmonary embolism only for an initial period of a few seconds, which period coincides with the fall of blood pressure in the systemic circulation. The coronary arteries then become dilated and remain so from five to thirty minutes. Tests following enervation of the heart and the hilus of the lung show that coronary vasodilatation following pulmonary embolism should not be ascribed to a pulmocoronary reflex but to a nutritional reflex autochthonous to the heart. Precordial pain following pulmonary embolism differs essentially from anginal pain despite a clinical similarity and it is not based on hypoxemic-coronary factors. In pneumothorax a hyperfunction or hypofunction of the right side of the heart occurs in proportion to the decreased pulmonary expansion. The nature of this phenomenon was determined in animal experimentation from the state of pressure in the pulmonary artery and the product of amplitudinal frequency in the systemic circulation. Blood perfusion of the coronary vessels exhibits the same contrasts; as a rule, hyperfunctioning of the right side of the heart corresponds to an increase in the perfusion of the right coronary artery. Here too no pulmocoronary reflexes of contraction are found; the cardiac blood perfusion is governed by nutritional demands.

BUCHAREST

(From Our Regular Correspondent)

March 15, 1938.

The Revision of 3,000 Medical Diplomas

The ministry of health gained information about a criminal investigation by the public prosecutor. A sham lawyer, Manevici, procured medical and pharmaceutic "libera practica," the right to free medical practice, in a fraudulent way. In a workshop was found a heap of forged imitations of seals of several European faculties of medicine and of various magistrates, mayors and notaries. The public prosecutor has investigated the diplomas of all "professional men" whose right to free practice was obtained through the mediation of Manevici and this state of affairs made it necessary to undertake the revision of all libera practica rights obtained since 1919 by those who acquired their diplomas abroad.

These offenses were of formal importance, as they were apt to undermine the prestige of the medical and pharmaceutic professions. The ministry of health regarded it as a duty to require strict verification and to withdraw the libera practica right to practice medicine. As the ministry of health had not been provided with the necessary authority to execute these two procedures, it was necessary to provide authority for this through the legislature. This was done and the ministry of health was authorized to revise and verify the libera practica and other documents with which this right was obtained; also to suspend a libera practica obtained fraudulently. A committee of judges and physicians was appointed to do the work of revision.

At the time of the armistice in 1918, when Rumania increased its territory by the addition of Bessarabia, Transylvania, Bucovina and the Banate, all physicians in these new territories automatically acquired the right to practice medicine, and their diplomas were recognized as valid in the whole territory of Rumania. Now these diplomas are subject to revision; that is, all foreign diplomas that were issued outside the prewar kingdom of Rumania and the present Rumania. All diplomas have to be sent to the commission in Bucharest. Doctors who acquired their diplomas prior to 1919 have to send their original diplomas, a copy of these and their citizenship papers. Those who obtained their diplomas abroad after 1919 have to produce their diploma, their birth certificate, citizenship papers, a certificate of morality, their matriculation certificate, the official gazette in which their libera practica was announced and a list of the subjects which they studied at the foreign university. The number of diplomas to be revised amounts to more than 3,000.

Uterine Cancer in Rumania

At a recent surgical congress in Paris, Prof. Constantin Daniel and Dr. D. Mavrodin gave an account of cervical uterine cancer in Rumania. The basis of the report was their own experience and the observations of thirteen surgeons and one radiologist who answered a questionnaire sent to them. Their observations embraced 4,000 cases. 1. Valuable data were supplied to them by the Bucharest Demographic Institute. Taking the data of the Bucharest mortality rate in 1936, it can be seen that, in general, cancer is not much increased. Out of 19,000,000 inhabitants of Rumania 6,121 (2,548 male and 3,573 female) died of cancer; this means a mortality rate of 32 per hundred thousand. Cancer of the cervix uteri caused death in 1,648 cases in 1934 and in 1,733 cases in 1936, corresponding to a general cancer mortality of 14.2 per cent in the 4,000 cases embraced in Daniel and Mavrodin's report. In relation to genital cancer, cervical cancer occupies first place. At the gynecologic clinic of the Coltea hospital in Bucharest, 85 per cent of the genital cancers were cervical cancers. According to the data of the Bucharest Demographic Institute, of 1,858 fatal genital cancers 1,733, or 90 32 per cent, were uterine cancers. The cervical cancers of the Bucharest gynecologic clinic were associated with uterine fibroma in 7.97 per cent of the cases. In Rumania, cervical cancer was most frequent in multiparas; according to the Bucharest Third Surgical Clinic the rate was 70 per cent. In the majority of cases the lesions were so severe that the patients were declared incurable. According to the Geneva classification among the cases at the Bucharest obstetric and gynecologic clinic 10.99 per cent were of the first degree, 27.14 per cent second degree and 51.54 per cent third and fourth degree. Cases at the provincial hospitals afforded a worse picture. The period between the first manifestation of the disease and the time the patient called on a doctor was generally between two and three years. In Rumania practitioners generally make no diagnosis without the microscope. The most frequent form at the Rumanian clinics is the vegetative form, which occurs in 49.33 per cent; ulcerative forms were found in 18 per cent, infiltrated forms in 6 per cent and endocervical hypertrophic in 25.33 per cent. The first place in treatment is occupied in Rumania by surgery. Radioactive procedures, owing to the shortage of radium, are not generally accessible. According to Rumanian surgeons, radical surgical treatment is indicated in all first and second degree cases of cervical cancer. They almost without exception remove the tumor by the abdominal route. According to the questionnaire sent out by Daniel and Mavrodin the majority of our surgeons prefer to do the Wertheim total hysterectomy. The operative mortality varied between 4.83 and 8.82 per cent. Though seldom done in Rumania, the removal of the tumor through the vagina gave good immediate results. Radium is reserved for third and fourth degree cases, for patients whose conditions contraindicate surgical intervention and in cases of recurrence. In private practice no radium treatment is given yet in Rumania.

CAMPAIGN AGAINST CERVICAL CANCER

In Rumania as yet there is no definite anticancer campaign in operation, although many efforts have been made in the interest of diminishing its ravages. Public lectures are being given on the early recognition of cancer and graduate courses are arranged for doctors; lectures are given to doctors on the importance of periodic examination of bleeding patients, on the necessity of biopsy, on the surgical treatment of localized cervical cancer and on the advantages of irradiations in inoperable cancer. Every year a special "cancer week" is arranged. The Societatea Anatomica Pentru Studiul Cancerului brought out a film with the title "Cancerul," which was shown in connection with the lectures. Articles appear in the lay journals from time to time pointing out the dangers of cancer. As regards a scientific campaign against cancer, an organization was formed under the leadership of Professor Daniel in 1929. Another recently established organization is the Societatea Romana de Cancerologie.

Marriages

HERBERT DE GRANGE WOLFF JR., Alexandria, Va., to Miss Anne Henderson Froehling of Richmond, February 12.

CHARLES R. WILLIAMS, Birmingham, Ala., to Miss Alice Virginia Futral in Wadley, Ga., in February.

WILLIAM T. WARD, Raleigh, N. C., to Mrs. Mary Powell Ward of Franklinton, in December 1937.

HOWARD L. VAN WINKLE to Miss Wilma Willimack, both of Cedar Rapids, Iowa, March 3.

RICHARD B. RANEY to Miss Carolyn Haldene Fuller, both of Durham, N. C., February 12.

JAY E. HOULAHAN, Mason City, Iowa, to Miss Beulah Sanders of Creston, March 1.

JESSE B. WILDENBERG to Miss Jean Miller, both of New York, February 12.

LEON RAMO, Spivak, Colo., to Miss Lillian Karsh, Oct. 3, 1937.

Deaths

Courtland Yardley White ⊕ Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1895; associate professor of bacteriology at the Medical Chirurgical College, Graduate School of Medicine, University of Pennsylvania; member of the American Association of Pathologists and Bacteriologists and the American Society of Clinical Pathologists; instructor in clinical medicine at his alma mater, 1899-1904; lecturer and demonstrator in morbid anatomy, veterinary department, University of Pennsylvania, 1899-1910; director of the pathologic laboratories of the Episcopal Hospital, 1908-1938; director, City of Philadelphia laboratory of bacteriology, 1910-1938; formerly on the staffs of the Children's, St. Joseph's and Jewish hospitals; aged 64; died suddenly, January 14, of coronary sclerosis.

Henry Lindsay Sanford ⊕ Cleveland; Harvard University Medical School, Boston, 1900; assistant clinical professor of genito-urinary surgery, Western Reserve University School of Medicine; secretary and past president of the American Association of Genito-Urinary Surgeons; member and past president of the American Urological Association; fellow of the American College of Surgeons; past president of the Cleveland Academy of Medicine; in 1914 member of the city board of health; served during the World War; on the staffs of the Lakeside Hospital, Cleveland City Hospital and St. Alexis Hospital; aged 64; died, February 5, in the University Hospital of coronary occlusion and bronchopneumonia.

James Alfred Spalding, Portland, Maine; Harvard University Medical School, Boston, 1870; member and past president of the Maine Medical Association; past president of the Cumberland County Medical Society; member of the American Academy of Ophthalmology and Oto-Laryngology and the American Ophthalmological Society; fellow of the American College of Surgeons; on the staff of the Maine General Hospital; editor of the *Maine Medical Journal,* from May 1933 to September 1935; author of "Life of Dr. Lyman Spalding" and "Maine Physicians of 1820"; aged 91; died, February 27.

Frederick Warren Smith ⊕ Philadelphia; Hahnemann Medical College and Hospital, Philadelphia, 1903; clinical professor of laryngology and rhinology at his alma mater; fellow of the American College of Surgeons; served during the World War; on the staffs of the J. Lewis Crozer Home for Incurables and Homeopathic Hospital, Chester, West Chester (Pa.) Homeopathic Hospital, Wilmington (Del.) Homeopathic Hospital and the Abington (Pa.) Memorial Hospital; aged 56; died, February 20, in the Hahnemann Hospital.

Francis Cruger Edgerton ⊕ New York; Columbia University College of Physicians and Surgeons, New York, 1898; fellow of the American College of Surgeons; member of the American Association of Genito-Urinary Surgeons; formerly clinical instructor in surgery, department of urology, Cornell University Medical College, New York; on the staffs of St. Elizabeth's and St. Francis, New York, and St. Mary's Hospital, Hoboken, N. J.; aged 64; died, February 19, in the Doctors Hospital, of pneumonia.

Paul Eugene Bowers, Los Angeles; State College of Physicians and Surgeons, Indianapolis, 1907; member of the California Medical Association and the American Psychiatric Association; served during the World War; at one time superintendent of the Indiana Hospital for Insane Criminals, Michigan City; author of "Clinical Studies in the Relationship of Insanity to Crime" and Manual of Psychiatry for the Medical Student and General Practitioner"; aged 51; died, February 15, of cardiorenal disease.

Charles Gluck, New York; Long Island College Hospital, Brooklyn, 1908; served during the World War; at various times on the staffs of the Mount Sinai Hospital, Sydenham Hospital, St. Luke's Hospital and Harlem Eye and Ear Hospital, New York; owner of the Passaic (N. J.) Eye, Ear, Nose and Throat Private Hospital; aged 52; died, February 15, in the Flower-Fifth Avenue Hospital, of septicemia, as the result of pricking his finger while operating.

Frank Bacon Hancock, Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1897; member of the Medical Society of the State of Pennsylvania; veteran of the Spanish-American War; for many years police and fire surgeon; aged 65; died, January 18, of pulmonary tuberculosis and arthritis deformans.

David Aaron Goodman, Old Forge, Pa.; Jefferson Medical College of Philadelphia, 1915; member of the Medical Society of the State of Pennsylvania; president of the school board; formerly deputy coroner; served during the World War; on the staff of the Taylor (Pa.) Hospital; aged 46; died, January 5, of coronary occlusion.

Alexander Berkley Raff, Chicago; Jefferson Medical College of Philadelphia, 1905; for many years member of the city board of health; at one time acting medical director of the Sanatorium of the Jewish Consumptives' Relief Society, Spivak, Colo.; aged 56; died, February 11, in the Michael Reese Hospital, of pneumonia.

Harry Burton Fuller ⊕ Chicago; Rush Medical College, Chicago, 1913; member of the American Academy of Ophthalmology and Oto-Laryngology; fellow of the American College of Surgeons; aged 51; on the staff of the Chicago Eye, Ear, Nose and Throat Hospital, where he died, February 4, of coronary thrombosis.

George Wallace Willcox, Hamilton, N. Y.; New York Homeopathic Medical College and Hospital, New York, 1895; member of the Medical Society of the State of New York; served during the World War; aged 71; died, January 27, in the Utica (N. Y.) Memorial Hospital, of coronary thrombosis.

Raymond Brooke Essick, Murphysboro, Ill.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1908; member of the Illinois State Medical Society; aged 52; on the staff of St. Andrew's Hospital, where he died, February 16, of cerebral hemorrhage.

Andrew Joseph Ware, Greenville, Miss.; Memphis (Tenn.) Hospital Medical College, 1903; formerly city and county health officer; at one time superintendent of the Matty Hersee Hospital, Meridian; aged 54; died, January 30, in a hospital at Jackson, of chronic nephritis and hypertension.

Arthur Parsons, Geneseo, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1892; member of the Illinois State Medical Society; served during the World War; formerly mayor and member and president of the high school board of education; aged 69; died, January 9.

Ellerslie Wallace Richards ⊕ Easton, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1895; served during the World War; for many years school physician; on the staff of the Easton Hospital; aged 65; died, January 6, of carcinoma of the sigmoid.

John Houston Ball, Abilene, Texas; Memphis (Tenn.) Hospital Medical College, 1892; past president and secretary of the Stephens County Medical Society; for several years county health officer; aged 70; died, January 19, in the Hendrick Memorial Hospital, of heart disease.

Adolph Bernard Quasser, Jacksonville, Fla.; Harvard University Medical School, Boston, 1922; member of the Florida Medical Association; formerly on the staffs of the Mercy and Portsmouth General Hospital, Portsmouth, Ohio; aged 41; died, February 3, of brain tumor.

Charles Roland ⊕ Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1898; member of the Associated Anesthetists of the United States and Canada; formerly health officer of Reading; aged 62; died, January 17, of carcinoma of the tongue.

Henry E. Beebe, Sidney, Ohio; Homeopathic Hospital College, Cleveland, 1873; for many years a member and at one time president of the state medical board; fellow of the American College of Surgeons; aged 88; died, February 12, of cardiovascular disease.

Albert J. Pounds, Delaware, Ohio; Columbus Medical College, 1881; formerly city health commissioner, member of the county board of health, president of the board of education and county coroner; aged 79; died, January 12, of carcinoma of the stomach and intestine.

Francis Edward Heid ⊕ Brockway, Pa.; University of Maryland School of Medicine, Baltimore, 1913; past president of the Jefferson County Medical Society; on the staff of the Maple Avenue Hospital, DuBois; aged 49; died, January 27, of heart disease.

Charles Lyon Fullmer, Renovo, Pa.; Jefferson Medical College of Philadelphia, 1883; member of the Medical Society of the State of Pennsylvania; at one time county coroner; for many years school physician; aged 78; died, January 25, of myocarditis.

Henri Romeo Vallee, Montreal, Que., Canada; School of Medicine and Surgery of Montreal, 1918; aged 42; on the staffs of the Lachine General Hospital, Hopital St. Joseph, Lachine and the Hopital Ste. Jeanne D'Arc, where he died, January 13.

William Stewart Russell ⊕ Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1903; on the staff of the Pennsylvania Hospital; aged 62; died, January 20, in the Philadelphia General Hospital, of meningo-encephalitis.

John H. Sampson, St. Joseph, Mo.; Missouri Medical College, St. Louis, 1881; member of the Missouri State Medical Association; at one time professor of pediatrics at the Ensworth Medical College; aged 81; died, February 10, of pneumonia.

Karle Henry Granger, Weymouth, Mass.; Dartmouth Medical School, Hanover, N. H., 1893; member of the Massachusetts Medical Society; school physician; aged 69; died, Dec. 28, 1937, in the Baker Memorial Hospital, Boston.

Edmund Henry Lewis, Gordonsville, Va.; Jefferson Medical College of Philadelphia, 1887; member of the Medical Society of Virginia; aged 76; died, February 4, in the University Hospital, Charlottesville, of pneumonia.

William Willis Wray, Louisa, Ky.; Baltimore Medical College, 1897; member of the Kentucky State Medical Association; aged 67; died, January 12, in the General Hospital of uremia and carcinoma of the bladder.

Thomas C. Rummel, Tacoma, Wash.; Western Reserve University Medical Department, Cleveland, 1891; member of the Washington State Medical Association; aged 78; died, February 14, of cerebral hemorrhage.

William Peyton Beane, Keystone, W. Va.; University of Tennessee College of Medicine, Memphis, 1912; member of the West Virginia State Medical Association; aged 59; died, February 16, of cerebral hemorrhage.

Lyndon S. Smith ⊕ Monongah, W. Va.; Baltimore Medical College, 1901; physician for the Consolidated Coal Company at Monongah; aged 65; died, January 31, in the Cook Hospital, Fairmont, of cerebral hemorrhage.

Grant J. A. New, Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1895; member of the Medical Society of the State of Pennsylvania; aged 68; died, January 11, of myocarditis and chronic nephritis.

Elbert Eells Dewey, Chicago; Chicago Medical School, 1921; member of the Illinois State Medical Society; on the staff of the West Side Hospital; aged 60; died, February 2, in Lake Bluff, Ill., of heart disease.

Leigh Harrison Hunt, New York; University of the City of New York Medical Department, New York, 1880; noted etcher, art lecturer and critic; aged 79; died, Dec. 16, 1937, in the Mount Sinai Hospital.

Charles Pottberg, Philadelphia; Jefferson Medical College of Philadelphia, 1883; member of the Medical Society of the State of Pennsylvania; aged 81; died, January 9, of chronic myocarditis and endocarditis.

Alice Maude Smith, Tacoma, Wash.; Northwestern University Woman's Medical School, Chicago, 1896; member of the Washington State Medical Association; aged 71; died, January 11, of epigastric hernia.

Joshuaway Ilar Glover, Union City, Tenn.; Kentucky University Medical Department, Louisville, 1906; member of the Tennessee State Medical Association; aged 57; died, February 14, of chronic nephritis.

John Preston Carver, Simsbury, Conn.; Albany (N. Y.) Medical College, 1896; member of the Connecticut State Medical Society; aged 66; died, February 4, of acute toxic myocarditis with complications.

Warren Rice Flanagan, Continental, Ohio; Ohio State University College of Medicine, Columbus, 1935; member of the Ohio State Medical Association; aged 34; died, February 11, in an automobile accident.

Owen Joseph McGovern ⊕ Reading, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1917; aged 49; on the staff of St. Joseph's Hospital, where he died, January 24, of rheumatic heart disease.

John Frank Axtelle, Wallingford, Conn.; Long Island College Hospital, Brooklyn, 1878; member of the Connecticut State Medical Society; aged 83; died, February 8, of arteriosclerosis and hypostatic pneumonia.

Edwin S. Huntsman, Hulmeville, Pa.; Jefferson Medical College of Philadelphia, 1886; member of the Medical Society of the State of Pennsylvania; aged 75; died, January 5, of carcinoma of the prostate.

Robert Lewis Wilson, Jeannette, Pa.; Medico-Chirurgical College of Philadelphia, 1904; formerly on the staff of the Westmoreland Hospital, Greensburg; aged 59; died, January 21, of coronary occlusion.

Brent Charles Tarbell, Naco, Ariz.; Kansas City (Mo.) Medical College, 1901; acting assistant surgeon, U. S. Public Health Service; aged 60; died, January 27, in the Copper Queen Hospital, Bisbee.

William Thomas Arnold, Hemphill, Texas; Dallas Medical College, 1904; member of the State Medical Association of Texas; member of the board of education; aged 57; died, Dec. 23, 1937, of tularemia.

John Lawrence Montgomery ⊕ Los Angeles; Bennett Medical College, Chicago, 1911; aged 47; died, January 24, in the Los Angeles General Hospital, of traumatic rupture of an esophageal varicosity.

Robert O'Neal Boyd, Clover, S. C.; Medical College of the State of South Carolina, Charleston, 1931; aged 32; died, February 3, at a sanatorium in Charlotte, N. C., of pneumonia following influenza.

John Waring Lewis, Keo, Ark.; Tulane University of Louisiana Medical Department, New Orleans, 1904; aged 58; died, February 9, in a hospital at Little Rock, of pneumonia following influenza.

Daniel Sartar Johnson Jr., Braxton, Miss.; Memphis (Tenn.) Hospital Medical College, 1912; served during the World War; formerly county health officer; aged 60; died in December 1937.

William Bruce Payton, Riverside, Calif.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1881; aged 81; died, January 7, of coronary thrombosis and arteriosclerosis.

Higgerson Matherson Sale, Washington, Ga.; University of Georgia Medical Department, Augusta, 1900; member of the Medical Association of Georgia; aged 67; died, February 1, of pyelonephritis.

George Martin Guthrie, Inverness, Ala.; Medical College of Alabama, Mobile, 1900; member of the Medical Association of the State of Alabama; aged 62; died, January 9, of influenza and pneumonia.

Newman W. Nanney, Fulton, Miss.; Memphis (Tenn.) Hospital Medical College, 1904; member of the Mississippi State Medical Association; county health officer; aged 57; died, Dec. 7, 1937.

James Edwin Stuart, Livingston, Mont.; Willamette University Medical Department, Salem, 1909; member of the Medical Association of Montana; aged 72; died, January 4, of myocarditis.

Walter Frederic Pine ⊕ Dodge City, Kan.; University Medical College of Kansas City, Mo., 1908; formerly on the staff of St. Anthony Hospital; aged 67; died, January 24, of appendicitis.

Thompson Anderson, Denver; University of Nashville (Tenn.) Medical Department, 1901; member of the Colorado State Medical Society; aged 60; died, February 9, of lobar pneumonia.

John R. Wright, Louisville, Ky.; University of the South Medical Department, Sewanee, Tenn., 1901; veteran of the Spanish-American War; aged 68; died, Dec. 19, 1937, in Fairhope, Ala.

Enoch N. Gentry, Sturgeon, Mo.; University of Louisville (Ky.) Medical Department, 1879; member of the Missouri State Medical Association; aged 83; died, February 13, of arteriosclerosis.

Henry James Goubeaud, Brooklyn; Long Island College Hospital, Brooklyn, 1890; member of the Medical Society of the State of New York; aged 68; died, February 1, of pneumonia.

Thomas James Lawson, Ainsworth, Neb.; Medical Department of Omaha University, 1896; aged 75; died, January 26, of acute cholecystitis, thrombophlebitis and postoperative parotitis.

John Elmer Wilson, Butler, Ky.; National Normal University College of Medicine, Lebanon, Ohio, 1896; Cincinnati College of Medicine and Surgery, 1897; aged 72; died, Dec. 28, 1937.

Ralph M. Rusco, Chicago; Hahnemann Medical College and Hospital, Chicago, 1901; aged 58; died, February 3, in St. Bernard's Hospital, of intestinal obstruction and myocarditis.

Wilbur W. Warner, Bogalusa, La.; Kentucky School of Medicine, Louisville, 1894; member of the Louisiana State Medical Society; aged 68; died, January 28, of coronary thrombosis.

John Hughes Rothwell ⊕ Liberty, Mo.; Bellevue Hospital Medical College, New York, 1883; aged 79; died, January 6, of cerebral embolism, carcinoma of the liver and arteriosclerosis.

Oscar Vananda Guthrie, County Line, Okla.; College of Physicians and Surgeons, Little Rock, 1910; aged 51; was killed, February 7, near Cross Roads, in an automobile accident.

Frank Joseph Sexton, Brookline, Mass.; University of Pennsylvania Department of Medicine, Philadelphia, 1898; aged 65; died, January 4, of cerebral embolus and arteriosclerosis.

Charles Mathew Gower, Trenton, Ky.; University of Tennessee Medical Department, Nashville, 1895; veteran of the Spanish-American and World wars; aged 67; died, January 2.

Vanderhoef Morgan Disbrow, Lakewood, N. J.; University of Vermont College of Medicine, Burlington, 1880; aged 80; died, January 6, of myocarditis and arteriosclerosis.

Belle C. Buchanan Burgess, Chicago; Pulte Medical College, Cincinnati, 1883; Woman's Medical College of Cincinnati, 1894; aged 84; died, January 30, of cerebral hemorrhage.

Leonidas Erskine Rupert ✠ Florence, Colo.; University of Louisville (Ky.) Medical Department, 1893; aged 66; died, February 16, in Denver, of myocarditis and tuberculosis.

Zachary Taylor, West Jefferson, Ohio; Starling Medical College, Columbus, 1873; also a druggist; aged 88; died, January 17, of lobar pneumonia and cerebral hemorrhage.

Lawrence M. Hensel, Richmond, Calif.; Northwestern Medical College, St. Joseph, Mo., 1885; aged 85; died, January 30, in a hospital at Oakland, of bronchopneumonia.

Samuel E. Bamford, Clio, Iowa; College of Physicians and Surgeons, Keokuk, 1889; aged 78; died, January 15, in St. Joseph's Mercy Hospital, Centerville, of pneumonia.

Thomas O. Helm, Bowling Green, Ky.; University of Louisville Medical Department, 1885; aged 78; died, Dec. 17, 1937, in the Norton Memorial Hospital, Louisville.

George Otto Henry Buchner, Bakersfield, Calif.; Cooper Medical College, San Francisco, 1907; member of the California Medical Association; aged 57; died, Dec. 12, 1937.

James Francis Edward Colgan ✠ Philadelphia; Jefferson Medical College of Philadelphia, 1892; aged 74; died, January 8, in St. Mary's Hospital, of cerebral hemorrhage.

Matilda J. Gallagher, Washington, D. C.; National University Medical Department, Washington, 1892; aged 75; died, February 8, of myocarditis and chronic nephritis.

Halbert Joel Burdick, Cleveland Heights, Ohio; University of the City of New York Medical Department, New York, 1888; aged 73; died, January 15, of pneumonia.

W. W. Kerr, Volga, W. Va.; Medical College of Ohio, Cincinnati, 1892; member of the West Virginia State Medical Association; aged 72; died in December, 1937.

William Thomas Buck, Beech Bluff, Tenn.; Vanderbilt University School of Medicine, Nashville, 1901; served during the World War; aged 64; died, Dec. 14, 1937.

Alexander C. Rinkenberger, Benton Harbor, Mich.; Chicago Homeopathic Medical College, 1888; aged 68; died suddenly, Nov. 8, 1937, in the Mercy Hospital.

Robert Samuel Lindsay, Old Forge, N. Y.; Albany Medical College, 1890; formerly local health officer; aged 76; died, January 26, of diabetes mellitus and nephritis.

Stafford Rambo, Bluffton, Ga.; University of Maryland School of Medicine, Baltimore, 1891; also a dentist; aged 71; died, Dec. 25, 1937, of coronary thrombosis.

Duncan Donald Campbell, Stamford, N. Y.; Victoria University Medical Department, Coburg, Ont., Canada, 1884; aged 73; died, January 13, of coronary occlusion.

Charles Austin French, Boston; College of Physicians and Surgeons, Boston, 1893; aged 75; died, January 17, of cerebral hemorrhage and chronic myocarditis.

Edward M. Parker, Emporia, Va.; Maryland Medical College, Baltimore, 1900; member of the Medical Society of Virginia; aged 79; died, Dec. 16, 1937.

Margaret Kennedy Sullivan, Haddonfield, N. J.; Woman's Medical College of Pennsylvania, Philadelphia, 1895; aged 68; died, in January, of pneumonia.

Alexander Berry Childs, Eunice, La.; Tulane University of Louisiana Medical Department, New Orleans, 1907; aged 57; died in January of pneumonia.

Charles Cheyne Aitken, Des Moines, Iowa; Halifax Medical College, Dalhousie, N. S., Canada, 1881; aged 81; died, January 8, of aortic aneurysm.

Charles Sumner Fremont Whitcomb, Contoocook, N. H.; Medical School of Maine, Portland, 1895; aged 72; died, January 2, of cerebral hemorrhage.

George W. Wiley, Norman, Okla.; Fort Worth School of Medicine, Medical Department of Fort Worth University, 1900; aged 63; died, Dec. 31, 1937.

John Carlos Da Silva Pitta ✠ New Bedford, Mass.; Universidade de Lisboa Faculdade de Medicina, Portugal, 1884; aged 77; died, Dec. 10, 1937.

Edwin Harrison Moore, Pittsburgh; Eclectic Medical Institute, Cincinnati, 1896; aged 76; died, January 31, of influenza and bronchopneumonia.

Elmer Stanley Goudy, Vineland, N. J.; Medico-Chirurgical College of Philadelphia, 1898; aged 70; died, January 24, of a self-inflicted bullet wound.

Cornelius L. Bartholomew, Allentown, Pa.; Jefferson Medical College of Philadelphia, 1878; aged 93; died, January 26, of coronary thrombosis.

Mervin Edward Kallman, Sioux City, Iowa; Creighton University School of Medicine, Omaha, 1929; aged 30; died, January 26, of pneumonia.

Jeremiah Ballard, Los Angeles; State University of Iowa College of Medicine, Iowa City, 1875; aged 92; died, January 15, of chronic myocarditis.

John B. Winn, Hamilton, Texas; University of Louisville (Ky.) Medical Department, 1889; aged 82; died, January 22, of mitral regurgitation.

Robert Patrick McLaughlin, Ottawa, Ont., Canada; University of Toronto Faculty of Medicine, Toronto, 1903; aged 70; died, Dec. 31, 1937.

Edouard Rose, Montreal, Que., Canada; University of Bishop College Faculty of Medicine, Montreal, 1874; aged 85; died, Dec. 11, 1937.

Harry Elgin Webster, Dixon, Ill.; Rush Medical College, Chicago, 1910; aged 62; died, January 29, in Hillsboro, N. D., of angina pectoris.

Francis Ruthven Olney, Detroit; Loyola University School of Medicine, Chicago, 1928; aged 36; died, Dec. 11, 1937, in Little Rock, Ark.

C. H. Bynum, Kinston, N. C.; Leonard Medical School, Raleigh, 1896; aged 65; died, January 9, of cerebral hemorrhage and nephritis.

Allison Burdette Toaz, Detroit; Detroit College of Medicine and Surgery, 1914; aged 51; died, January 31, in an automobile accident.

George Warren Gleason, Cedar Rapids, Iowa; Chicago Homeopathic Medical College, 1888; aged 86; died, January 22, of myocarditis.

Matilda Hunt, San Francisco; University of London Faculty of Medicine, London, Ont., Canada, 1909; aged 55; died, Nov. 28, 1937.

Martin M. Christianson, Watertown, S. D.; University Medical College of Kansas City (Mo.), 1898; aged 79; died, Nov. 26, 1937.

William H. Nunn, Morganfield, Ky.; University of Tennessee Medical Department, Nashville, 1881; aged 83; died, Dec. 18, 1937.

Charles S. Russell, Hamilton, Ont., Canada; Queen's University Faculty of Medicine, Kingston, 1912; aged 49; died, Dec. 10, 1937.

Albert Carl Jongewaard, Sioux Center, Iowa; Rush Medical College, Chicago, 1904; aged 57; died, January 2, of pernicious anemia.

William Spencer Craghead, Denver; Barnes Medical College, St. Louis, 1895; aged 74; died, January 6, of cerebrospinal meningitis.

Edgar Poe Blair, Nashville, Tenn.; Vanderbilt University School of Medicine, Nashville, 1890; aged 70; died, Dec. 12, 1937.

Charles James Wagner, Toronto, Ont., Canada; University of Toronto Faculty of Medicine, 1899; aged 61; died, Nov. 16, 1937.

John W. Nuzum, Wick, Iowa (licensed in Iowa in 1886); aged 89; died, January 15, in Des Moines, of cerebral hemorrhage.

Joseph Alexander Reeves, Whitesburg, Ga.; Atlanta College of Physicians and Surgeons, 1903; aged 73; died, Dec. 13, 1937.

Lindsey Gee Poe, Newark, Ark.; University of Nashville (Tenn.) Medical Department, 1893; aged 68; died, January 19.

Charles E. Weidman ✠ Marcellus, N. Y.; Albany Medical College, 1880; aged 82; died, January 17, of lobar pneumonia.

Albert Edward Taplin, Veblen, S. D. (licensed in South Dakota in 1904); aged 71; died, January 15, of myocarditis.

Charles B. McLaughlin, Fordyce, Ark. (licensed in Arkansas in 1903); aged 75; died, January 28, of myocarditis.

Joseph Schulte, Detroit; Detroit Medical College, 1875; aged 88; died, January 9, of cerebral hemorrhage.

F. C. Roark, Kodak, Ky.; Louisville Medical College, 1891; aged 84; died in December 1937.

M. H. Davis, Leapwood, Tenn.; Memphis Hospital Medical College, 1895; died, January 21.

Bureau of Investigation

A HAIR-RAISING FRAUD

Paul Downing, Alleged Hair and Scalp Specialist, Debarred from the Mails

The "will to believe" is the greatest asset of the "patent medicine" faker. It breaks down sales resistance; it causes fat women to accept as scientific truth the veriest balderdash about alleged short cuts to the svelt figure; it explains why hard-headed—but bald-domed—business men fall easy prey to the grow-hair-quick quacks. Men are sensitive about the loss of their hair. The trait is no modern development; it is at least as old as the time of the prophets.

While there are fashions in quackery there are also good old staple frauds that can always be counted on to deplete the sucker. Cures for baldness rank high among the staples—and Mr. Downing's cure was one of them. Paul Downing of Portland, Ore., sold through the mails a product that, if one believed Downing, would raise hair on a billiard ball. The advertising of this marvel was banally unoriginal but one doesn't have to be a creative spirit to sell cures to the bald-headed contingent.

In due time that overworked branch of the Post Office Department that investigates fraudulent mail-order schemes got around to Mr. Downing and called on him to show cause why his business should not be debarred from the mails. Downing's snappy come-back was an affidavit to Washington submitted by his attorney in which he declared that he had, a few months previously, sold his business lock, stock and barrel to one "Kenneth Ames." About the same time the Post Office officials received a letter from another Portland attorney transmitting what was described as "revised literature" said to have been recently adopted by a certain W. E. Ames. Nothing was furnished to show whether "Kenneth Ames" and "W. E. Ames" were the same person.

According to the government report the Downing "cure" came in four very small bottles, thus:

BOTTLE I.—"Stimulating Oil." Contained two teaspoonfuls of oil with red pepper and cloves.

BOTTLE II.—"Scalp Food." Contained four teaspoonfuls of a mixture of two parts oil and one part kerosene.

BOTTLE III.—"Restorative Oil." Contained a mixture of equal parts of oil and kerosene.

BOTTLE IV.—"Medicated Scalp Cleaner." Contained three tablespoonfuls of liquid soap with carbolic acid.

These four bottles and their contents cost Mr. Downing 65 cents; he sold them for $5—which would seem to take care of considerable overhead. The instructions were simple: Use the red-pepper mixture on Mondays; the weaker kerosene mixture on Wednesdays; the stronger kerosene mixture on Fridays and shampoo with the carbolic acid liquid soap once every two weeks. The five dollar "treatment" was good for five applications; then one sent for another five dollars' worth.

Part of the Downing ballyhoo were "before-and-after" pictures of one L. F. Rose of Portland, Ore. Mr. Rose, before using Downing's red pepper, kerosene, carbolic acid wonder, was shown with a head as devoid of hair as a marble statue. But after the treatment he is shown with enough hair to permit a marcel wave. The only fault one could find with these pictures of Mr. Rose is that he apparently was just as free of any eyebrows after the treatment as he was before. Nevertheless, Mr. Rose makes affidavit to the fact that "I can hardly find words descriptive enough to express my feelings and thankfulness."

The Solicitor for the Post Office Department—Judge Karl A. Crowley—after considering all the evidence in the case declared that the so-called treatment sold by Downing would not remove the cause of, or cure, baldness; would not produce a strong, healthy, luxuriant growth of hair on the heads of persons who are bald; was not "miraculous," "positive" or "reliable" in its effects; and that Downing's scheme was one for obtaining money through the mails by means of false and fraudulent pretenses, representations and promises. The Solicitor recommended that a fraud order be issued. On July 31, 1937, the mails were closed to Paul Downing.

ARTHOX OR SULFIODOXYGENIA

A "Patent Medicine" Becomes an "Ethical Specialty"

About three years ago—in February 1935—a physician wrote to Standard Laboratories, Inc., 30 Huntington Avenue, Boston, asking that concern for the formula of its product "Arthox" which a patient had received. An advertising circular described Arthox as "a scientific medicinal formula" and as an "analgesic specially prepared to aid in the relief of the muscular aches and pains of rheumatism and arthritis." The circular gave no information regarding the composition of the product; in fact the circular was rather obviously *not* addressed to physicians.

In reply to the physician's inquiry Standard Laboratories, Inc., wrote admitting that Arthox was "an over-the-counter preparation"—that is, a "patent medicine"—and stated that the product contained "the following ingredients":

"Alcohol (2%)	Burnham's Soluble Iodine
"Anise	Sassafras
"Glycyrrhiza	Sarsaparilla
"Methyl Salicylate	Sodium Salicylate"

No quantities were given—except alcohol, the proportion of which the federal law requires to be declared—so the information meant little. Yet the concern claimed, in the same letter, that Arthox was "being prescribed by a large number of physicians, some of them specialists in the treatment of arthritis here in the east."

This was in February 1935. A year later physicians received "literature" on Arthox stating that the preparation was sold "on physician's prescription only"! As the name "Arthox" was apparently too low-brow for an "ethical specialty," that name had added to it a high-hat, and quite meaningless, synonym "Sulfiodoxygenia." Because of the number of inquiries from physicians regarding the product the Council on Pharmacy and Chemistry asked the A. M. A. Chemical Laboratory to analyze this "patent medicine." The condensed Laboratory report, with the technical details of the analytic work omitted, reads as follows:

> "One original bottle of Arthox (Standard Laboratories, Inc., Boston) was submitted to the A. M. A. Laboratory for examination at the request of the Council on Pharmacy and Chemistry.
>
> "The label on the bottle indicated that the preparation was for the treatment of arthritis and rheumatoid conditions and gave as a synonym to Arthox the term 'Sulfiodoxygenia.'
>
> "The bottle contained 12.4 ounces of a yellowish brown liquid containing a brownish sediment. Qualitative determinations indicated sodium, magnesium, calcium, iodide, sulfate, a trace of iodine and a substance yielding an odor similar to anise. Salicylates and other antipyretics and alkaloids [1] were not found.
>
> "The preparation was strongly acid, 1 cc. being equivalent to approximately 4 cc. of one-tenth normal sodium hydroxide."

On the basis of their analyses the chemists reported that it might be concluded that "Arthox contains as its essential ingredients sulfuric acid, sodium iodide, flavoring substances and probably colchicin."

It would thus appear that the composition of Arthox has changed. The salicylates have gone; is it possible that colchicin has taken their place? It has often been said in these pages that when one buys a "patent medicine" one buys a *name* and not a *thing!* There is nothing fixed about the formula of a proprietary medicine; the maker can change it overnight if he so desires or if commercial expediency so dictates. Many a "patent medicine" on the market today bears but little resemblance to its original namesake. The manufacturers of Arthox have at least a good precedent for such changes in formula as they have seen fit to make.

1. A substance insoluble in petroleum and capable of extraction from acid aqueous solution with chloroform was found. The substance was suggestive of colchicin but the amount was small and the identity reactions were never clear-cut.

Correspondence

TESTS FOR ALCOHOLIC INTOXICATION

To the Editor:—I read with interest and admiration the article in THE JOURNAL, March 12, by Selesnick concerning alcoholic intoxication and also the article in the same issue by Harger, Lamb and Hulpieu, describing a test for intoxication employing breath. Both articles are scholarly, well prepared and absolutely sound from a scientific standpoint; but, from the point of view of the rural general practitioner an attitude must be taken, less strictly accurate, perhaps, from the laboratory expert's angle, but none the less effective and efficient for the practical purposes of everyday life.

In the first place, both articles, in my opinion, paid less attention than they should have done to the fact of the personal equation—of variations in individual susceptibility. No one would deny that a dose of alcohol that might well kill an infant would have a far less deleterious effect on a seasoned drinker, and any practical physician knows that a given degree of intoxication (including the blood, urine, spinal fluid, and what-not concentrations) produces less clinical manifestation in some individuals than in others with a higher tolerance. A concentration of alcohol that would render one individual definitely incapable of operating a motor vehicle might not produce such an effect in another.

Secondly, one wonders whether such ultrascientific and comparatively complicated tests are actually called for in determining whether or not a given individual is drunk. It is my thought that most general practitioners who are accustomed to exercise common sense in their professional life would be able, after a moderately thorough physical examination and a fairly brief observation of the individual, to say whether or not, in their opinion, he was drunk enough to render him incapable of driving a car. One wonders too whether the results of the careful investigations of the laboratory scientist are of any more real value in a court of law than the sworn professional opinion of one or more experienced and practical doctors.

Far be it from me to decry the investigations of the trained laboratory worker, which are indispensable to modern practice; my reaction merely was, after reading the excellent articles referred to, to wonder whether too ultrascientific an attitude in these drunken driving cases did not smack just a trifle of the pedantic and tend a bit to confuse the issue.

Let us be practical; let us not render our everyday decisions too difficult, especially in the eyes of our brethren of the law; and let us try to make our decisions on the basis of common sense plus practical professional experience and decide each case on its merits, instead of adhering too closely to a rule-of-thumb chemical test.

CHARLES K. REINKE, M.D., Oxford, Pa.

WATER INTOXICATION

To the Editor:—I have read with interest the report of Helwig, Schutz and Kuhn in THE JOURNAL of February 26. Since they refer to some of our experimental studies (Smyth, F. S.; Deamer, W. C., and Phatak, N. M.: Studies in So-Called Water Intoxication, *J. Clin. Investigation* **12**:55 [Jan.] 1933), I feel justified in voicing an opinion regarding their interpretation. In the acute water intoxication induced experimentally by us in dogs, vomiting, not diuresis, was the more characteristic result. Water was given by gavage; no parenteral fluids were administered. In such cases the course was brief, the electrolyte loss was largely gastric hydrochloric acid, the result a relative alkalosis from acid deficit.

In contrast with these observations, the clinical picture described by Helwig and his co-workers is much more confused. The prolonged course with possible starvation, anesthesia, ketosis (or infection?) added potential acid fractions. No determinations of total base or sodium are offered to show that a base deficit did not also exist. The bleeding condition suggests a probable loss of total electrolyte (both acid and base) hardly combated by 7,000 cc. of water (proctoclysis and oral route).

I believe their citation shows that care should be exercised in obtaining a more complete panel of electrolyte determination before labeling a condition acidosis or alkalosis. Vomiting itself may cause depletion of both base and chloride but, if largely gastric, chloride loss predominates. The predominance of chloride loss in the type of vomiting in dogs made for a relative alkalosis in our experiments. In the rabbits used by Helwig and his co-workers, vomiting is not characteristic but, as Gamble and Ross have shown (Gamble, J. L., and Ross, S. G.: The Factors in the Dehydration Following Pyloric Obstruction, *J. Clin. Investigation* **1**:403 [June] 1925), a gastric dilatation with electrolyte removed from the body has a somewhat similar effect. It may be that a relatively greater removal of base accounts for their experimental picture of acidosis.

As for the clinical picture, I believe great caution should mark the use of sodium bicarbonate unless it is certain that base depletion exists and that the use of proctoclysis and oral administration of large amounts of water with insufficient electrolyte is no protection against ketosis or blood dilution.

FRANCIS SCOTT SMYTH, M.D., San Francisco.

DOCTOR AND PATIENT

To the Editor:—The close cooperation of doctor and patient has always been the condition of curing or preventing disease. The Greeks built temples to Aesculapius, and those who were healed at his shrines left votive offerings to the god. The association of priestly offices with medicine existed among primitive peoples. Today the patient places his life and future well-being in the hands of the physician or surgeon, in whom he has the fullest confidence. Full partnership of interest and purpose is the condition of successful medicine.

The patient gives up voluntary action and consciousness and lets the surgeon operate on his body to restore health. The man trusts his wife or his child to the power and guidance of the physician. The physician assumes the Oath of Hippocrates "into whatsoever house I enter, it shall be for the good of the inmates." This relation between the doctor and those he has undertaken to guide and serve is the essential basis of the healing art. Every physician knows that without full cooperation and confidence of the patient he can do little to keep or restore health.

Mutual understanding and confidence is the essential condition of a physician's power to render real service to his patient. It was the most important and valued possession of the old time family doctor. This is the reason that every conscientious and experienced doctor looks with disfavor on attempts to extend "state medicine" or "health insurance" into the lives and homes of patients. He knows that prescriptions and operations cannot give health, unless the daily life and fixed desire of the patient is to gain and keep health.

The purpose of the patient must be to make health the chief objective of his daily living. His trust in a medical adviser who will bring to his service all possible achievements of medical and general science that can help him is the only real health insurance. Doctor and patient must know and trust each other so well that they have a joint aim and can do perfect team work to attain it. The patient is the only one

who can know of all his symptoms as they arise. He must esteem his physician so highly that he will lay before him the most intimate feelings and desires for the success of their joint undertaking. Specialists may be needed and secured to meet special emergencies. But the personal physician who knows the patient on the one side and the general resources of medicine and the personalities of his professional colleagues on the other is the only one who can bring the full resources of medicine to the help of his patient.

The growth and recognition of preventive medicine make it ever more important that the whole life of the patient should be controlled by the requirements of health. It becomes more and more impossible that the lives and health of the people should depend on the working of a governmental or corporate machine which regards individuals simply as material for its impersonal working. The free association of patient and physician must never be placed in the control of financial interests or social dictatorships. The vital relationship of physician and patient should be guarded by all who understand the value of health.

EDWARD JACKSON, M.D., Denver.

BLOODY TEARS

To the Editor.—The short paper entitled "Bloody Tears: Bilateral Capillary Hemangiomas," by Dr. T. J. Dimitry (THE JOURNAL, February 26, p. 643), interested me greatly. Several years ago I had a patient who complained that he had bloody tears on one side. After careful examination, he proved to have suffered from occlusion of a posterior inferior cerebellar artery, which sometimes produces a unilateral paralysis of the sympathetics on the side of the lesion. This is associated with vasodilatation, dryness of the skin, enophthalmos and the Horner syndrome. Under such circumstances, doubtless a slight abrasion or inflammation of the conjunctivae resulted in a seepage of blood, which the patient called "bloody tears."

I feel that this adds interest to the case reported by Dr. Dimitry.

LLOYD H. ZIEGLER, M.D., Wauwatosa, Wis.

USE OF THIAMIN CHLORIDE IN POLYNEURITIS AND CARDIOVASCULAR CONDITIONS

To the Editor:—In the admirable exposé of the therapeutic use of vitamin B_1 in polyneuritis and cardiovascular conditions, Maurice B. Strauss (THE JOURNAL, March 26, p. 953) justly emphasizes that "striking as the results of vitamin B_1 therapy are in the cardiovascular disturbances arising from a deficiency of vitamin B_1, no effects whatever are to be expected in other types of heart disease, with or without edema, in the edema of pregnancy toxemias, nephrosis and the like."

It may not be amiss to issue a word of caution with regard to the indiscriminate use of vitamin B_1 which is in vogue now, being advocated for a nearly endless variety of conditions. I am referring chiefly to intravenous injections of vitamin B_1; it has been shown (Narat, J. K., and Loef, J. A.: Effects of Vitamin B_1 Concentrate, *Arch. Int. Med.* **60**:449 [Sept.] 1937) that not only various extracts but in a lesser degree also synthetic crystalline products may provoke a drop in blood pressure; this effect is possibly attributable not wholly to impurities, histamine or choline. It follows that the depressor effect of vitamin B_1 preparations makes their intravenous administration undesirable in many conditions, particularly those associated with a low blood pressure. Vitamin B_1 is not a panacea; let us use it intelligently, lest it be discredited.

JOSEPH K. NARAT, M.D., Chicago.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

MYASTHENIA GRAVIS

To the Editor:—What are the cardinal signs and symptoms of myasthenia gravis? Please outline the latest accepted modes of treatment with a word regarding prognosis.

M.D., Missouri.

ANSWER.—The cardinal signs and symptoms of myasthenia gravis are so characteristic that the diagnosis is not usually difficult. In the past, however, there has been considerable difficulty in diagnosing the disease in its early stages. In a majority of cases some trouble with the third cranial nerve is the beginning symptom, which leads to ptosis of the eyelids, either unilateral or more commonly bilateral, and some degree of diplopia. This may be the only sign which the patient shows. There is a tendency, moreover, for the weakness of the muscles to become more pronounced as the result of use, so that toward the end of the day the condition is worse than in the morning. Associated with the weakness of the muscles supplied by the third cranial nerve, one often finds weakness of the external rectus muscle, supplied by the sixth cranial nerve, and next in frequency there is involvement of the muscles innervated by the ninth cranial nerve, leading to dysphasia. A careful examination, moreover, will usually disclose bilateral weakness of the seventh cranial nerve, with some dulling of the patient's facial expression and inability to close the eyes tightly or to show the teeth widely. With this involvement of the motor branch of the fifth cranial nerve, difficulty in chewing or even inability to hold up the jaw frequently appears. It is characteristic for these patients to sit holding their lower jaw on their fist, with an expressionless face, often a nasal tone of voice, and with their eyes either partially or completely closed. Muscles involved less frequently are those of the neck and of the extremities. Some patients actually have difficulty in holding up the head. The weakness in the arms is usually generalized, without specific muscle involvement. In walking and getting up or down from a chair or bed the loss is a general one, although there may be partial footdrop. Easy fatigue of voluntary movements, without adequate cause, in some generalized activity is suggestive of myasthenia gravis. The disease is seldom seen before the second decade of life and is commonest in the third decade. Formerly it was considered that cases rarely occurred after the age of 30 and were almost unknown after 40. In the last few years a more careful study of the disease, as the result of its early diagnosis by the use of prostigmine, has led to the conclusion that older patients are not infrequent sufferers, even those in the sixth and seventh decades of life. In the older patients there is often a predilection toward dysphasia and dysarthria, with involvement of the neck muscles and generalized weakness.

The discovery of prostigmine and its remarkable effect on myasthenia gravis have led to its use not only as a diagnostic measure but also for treatment. In diagnosis the response in myasthenia gravis is rapid and remarkably complete and response in all other diseases is only slight. Viets and Schwab (*New England J. Med.* **213**:1280 [Dec. 26] 1935) and later Viets and Mitchell (*ibid.* **215**:1064 [Dec. 3] 1936) reported on the use of prostigmine as a test and devised a simple means of recording the data. Subsequently prostigmine has been used extensively in the treatment of the disease, having replaced in large measure most of the drugs formerly used, such as aminoacetic acid, ephedrine, benzedrine and potassium chloride. At first given subcutaneously or intramuscularly, prostigmine recently has been used in a tablet for oral administration with considerable success. Since the advent of this drug there have been few deaths. In a series of twenty-three cases reported by Viets, Mitchell and Schwab (THE JOURNAL, Dec. 11, 1937, p. 1956), in which the ages varied from 20 to 76, only one death occurred and that of a patient who did not keep up his daily intake of prostigmine by mouth. A 15 mg. tablet is used, sometimes with tincture of belladonna or atropine if the prostigmine causes abdominal discomfort. The effect of the drug, moreover, may be slightly augmented in some cases by the use of 0.025 Gm. (three-eighths grain) of ephedrine, three times in the twenty-four hours. Prostigmine is used from four to twelve times a day, the spacing of the drug being of considerable importance. Once the maximum dose is achieved, patients have been con-

tinued on it for an indefinite time, in some cases as long as two years. Under this regimen about half the patients are able to resume their ordinary occupation, provided it does not require active muscular effort. Other patients are made fairly comfortable, although their life is much restricted. In cases in which there has been difficulty in swallowing, the oral pill may be given by stomach tube or, better still, an emergency injection of prostigmine intramuscularly may effectively tide over the crisis. Ampules of prostigmine should always be kept at hand.

HAIR COLOR AND DISEASE

To the Editor:—To what diseases are blondes, brunettes and red heads disproportionately susceptible? Please include skin diseases. Is there a disproportion in the sickness and death rate of blondes, brunettes and red heads?

M.D., Massachusetts.

ANSWER.—There is apparently little information available on the subject of this inquiry. On page 102 of Draper's "Human Constitution" (Philadelphia, W. B. Saunders Company, 1924) it is stated that "among the tuberculous people 71 per cent of the males and 76 per cent of the females were light haired. This

Hair Color

	Hair Color				
Gallbladder disease	Light	Brown	Red	Black	Total
Male					
Number of cases	3	7	0	3	13
Percentage of total cases	23.1	53.8	0.0	23.1	100.0
Female					
Number of cases	3	11	0	16	30
Percentage of total cases	10.0	36.7	0.0	53.3	100.0
Gastric and duodenal ulcer					
Male					
Number of cases	3	10	2	14	29
Percentage of total cases	10.3	34.5	6.9	48.3	100.0
Female					
Number of cases	0	7	0	5	12
Percentage of total cases	0.0	58.3	0.0	41.7	100.0
Nephritis and hypertension					
Male					
Number of cases	5	7	0	3	15
Percentage of total cases	33.3	46.7	0.0	20.0	100.0
Female					
Number of cases	2	11	2	3	18
Percentage of total cases	11.1	61.1	11.1	16.7	100.0
Pernicious anemia					
Male					
Number of cases	4	7	0	3	14
Percentage of total cases	28.6	50.0	0.0	21.4	100.0
Female					
Number of cases	4	8	0	5	17
Percentage of total cases	23.5	47.1	0.0	29.4	100.0
Asthma					
Male					
Number of cases	0	1	1	3	5
Percentage of total cases	0.0	20.0	20.0	60.0	100.0
Female					
Number of cases	0	5	2	3	10
Percentage of total cases	0.0	50.0	20.0	30.0	100.0
Tuberculosis					
Male					
Number of cases	51	6	2	13	72
Percentage of total cases	70.8	8.3	2.8	18.1	100.0
Female					
Number of cases	16	3	0	2	21
Percentage of total cases	76.2	14.3	0.0	9.5	100.0

cannot be accounted for as a Nordic or racial characteristic, since this group is only about 50 per cent Nordics." On page 240 of the same book is a table relating hair color to various diseases. As can be seen from the accompanying table, which gives the information contained in the one prepared by Dr. Draper, the number of patients was small; the results therefore must be viewed with conservatism and the percentages disregarded.

QUININE AND ATABRINE IN BREAST MILK

To the Editor:—Are there any data on the excretion of quinine and atabrine in breast milk?

M.D., Mississippi.

ANSWER.—Terwilliger and Hatcher (*Surg., Gynec. & Obst.* **58**:823 [May] 1934) have stated that "quinine may be detected in 1,500,000 parts of milk but the amounts present in very low concentration slightly exceed those actually recovered." These authors administered five doses, each of 300 mg., of quinine sulfate orally to two women and seven doses of 640 mg. to four women. Traces of quinine were detected in the milk in every case, in one instance in the milk drawn thirty minutes after the administration. None was found in milk drawn as late as twenty-four hours after the administration of quinine. According to Terwilliger and Hatcher the amount of quinine secreted in the mother's milk is too small to have any injurious effect on the nursing infant.

No references have been found on the excretion of atabrine in breast milk. However, it may be worth while to emphasize, as was pointed out many years ago by Bucura (*Ztschr. f. exper. Path. u. Therap.* **4**:398, 1907) that very few drugs have been found with certainty in the breast milk. Kwit and Hatcher (Excretion of Drugs in Milk, *Am. J. Dis. Child.* **49**:900 [April] 1935) studied the excretion of drugs in human milk and were especially interested in examining milk for morphine, codeine, salicylic acid, phenolphthalein, barbital, sodium bromide and potassium bromide. They concluded that none of the aforementioned drugs except sodium bromide were present in the milk in an amount sufficient to indicate that the continued use of milk would injure a normal nursing child.

ERECTIONS AND FLATUS

To the Editor:—A well developed and well nourished married man, aged 43, for the past twelve years has been obliged to arise at 3 or 4 o'clock in the morning because of lower and intra-abdominal gas pressure coupled with a severe erection. The erection precedes the pressure symptom by about thirty minutes, and the gas or pressure is relieved only after the subsidence of the erection, after which considerable gas is passed. The only method by which relief is obtained is by walking the floor for two or more hours. This procedure has been repeated every night without fail for the past twelve years. A variable amount of generalized genital soreness persists for several hours because of the persistent erection, and a certain amount of lassitude is present the next day because of the loss of sleep. The sexual life is normal save that intercourse will aggravate the condition at the next session. Physical examination is essentially negative save for a few bouts of so-called biliousness. The weight, temperature, blood pressure, blood, urinalysis, Wassermann reaction, prostate and prostatic secretions are normal. Gastric analysis reveals total acids of 25 at the height of the digestive period. The patient does not belch or eruct gas. He is perfectly normal during the day.

M.D., Wisconsin.

ANSWER.—The patient is probably troubled with prostatitis, in spite of the fact that rectal examination reveals a prostate within the limits of normal. The reflex gastro-intestinal disturbance is most likely on a basis of urinary retention and subsequent prostatic irritation. The patient should have a cystoscopic examination and probably subsequent prostatic massage if no local treatment is suggested from examination of the bladder.

INTRANASAL OPERATION FOR REMOVAL OF EXCESSIVE ETHMOID BONE

To the Editor:—In a number of older persons a submucous operation on the nose, done in early life, failed to include sufficient removal of the superior portion of the perpendicular plate of the ethmoid bone. The result later has been elaboration of bony tissue along the rough cut edge of this perpendicular plate with subsequent closing of one or both nasal fossae in their superior portions, these portions being particularly narrow. Specialists have given me to understand that separation of the mucous membrane for a second submucous operation is impossible. In one instance, pressing the offending portion of the ethmoid back into line (rebreaking it) gave only temporary relief. Is there any accredited method for solving this problem? Is an open operation even at the expense of scarring the nose ever resorted to with success?

M.D., New York.

ANSWER.—An open operation in cases of this type is certainly not indicated. The thickened bone can be removed intranasally without the necessity of attempting to separate the agglutinated mucous membranes below it. The incision should be made along the lower border of the bony ridge, which is easily palpable, and it may be placed in whichever side of the nose is most convenient or accessible to the surgeon. The mucoperiosteum is first elevated on the same side. Then it is necessary to expose the lower rough edge of projecting bone so as to permit a small curved periosteal elevator to peel off the mucoperiosteum of the opposite side. Naturally great care is necessary to avoid perforating the mucous membrane on that side. However, in most cases if the field has been injected with procaine hydrochloride and epinephrine there is very little bleeding and the progress of the instrument can be guided by direct vision. After the bone has been exposed on both sides it may be removed by using a sharp chisel, which is directed along a line parallel to the nasal bridge and at a safe distance below it. It is well in these cases not to attempt to break off too much bone at one time and it is recommended that it be bitten off piecemeal with the Freer-Gruenwald forceps. In this manner one can safely approach the nasal bridge and even the olfactory region without the risk of accidentally fracturing the cribriform plate. At the conclusion of the operation one should have an intact mucosa on one side and a long incision in the membrane of the other side running upward and backward. Since the two

mucous membranes below the field of activity have not been touched, there is no need to pack the nose. Should there be persistent bleeding from the wound, it can be controlled by inserting on each side a cotton dental roll dipped in petrolatum, which is pushed up high under the bridge and left in place for twenty-four hours.

RURAL LIFE AND MENTAL HEALTH

To the Editor:—I have heard that the largest percentage of mental cases were to be found among the wives of farmers, and this was caused by the fact that they lived isolated lives on remote farms and saw few if any people outside their immediate families. It has been stated also that with the coming of the telephone and the radio there was a material decline in this type of case, because of the fact that these women experienced contacts with the outside world. Is this true? Where can I get the facts?

W. E. AUGHINHAUGH, M.D., New York.

ANSWER.—The belief that mental disorders are more frequent in the wives of farmers arose largely from statistical studies reported from the eastern states forty or fifty years ago. More recent studies of the same nature tend to show no greater incidence of mental disorder in rural women than is found in the urban group. In fact, the pendulum seems to have swung in the other direction. However, no statistics seem available which are sufficiently general to cover the entire United States.

There is probably no single cause responsible for this change. While greater communication and contact through telephones, automobiles and radios may have contributed to this result, there have been other and even more profound changes in rural life which are equally, if not more directly, acting influences on mental health. First of all, improved rural sanitation has undoubtedly resulted in better physical health and this in turn has preserved mental health; then to be considered are improved rural medical care, elimination of drudgery and monotony by rural electrification, the utilities now available throughout the country, the newspapers, weeklies and periodicals and, as far as women are concerned, one might also add clothes and cosmetics. Probably there are other less evident but equally potent factors, such as higher standards of living generally. It is difficult to point out any one or even several influences that have had a favorable influence, all of which merely show how far so-called mental hygiene is tied up with social as well as physical environment in every respect.

PAIN IN GROINS DURING PREGNANCY

To the Editor:—During the latter half of pregnancy many women complain of pain or discomfort in one or both groins. I read some time ago that relief may be given to such patients by intramuscular injections of a preparation the name of which I have forgotten but which I believe was a vitamin product. In any event will you please advise me on the treatment of this condition.

M.D., Ontario.

ANSWER.—The discomfort in the groins that the patients complain of during the latter half of their pregnancy is probably due to the vascularity and hypertrophy of the ligamentous supports of the uterus. A properly fitting abdominal support will usually relieve this. There are no vitamin preparations which influence this condition.

It is possible that the physician is referring to muscular cramps of the thighs and legs, which occur during pregnancy. These cramps may be indicative of an insufficient calcium intake. It has been suggested that calcium gluconate, put up in ampules containing 1 Gm., be given intramuscularly to increase the supply of calcium. These injections often help in the treatment of muscular cramps during pregnancy.

OVULATION—FORMATION AND FATE OF SPERMATOZOA

To the Editor:—Do the two ovaries produce an ovum simultaneously? If so, why is but one usually fertilized? What is the life of a spermatozoon when not expelled, and if not expelled through intercourse what happens to it? How long is it till other virile spermatozoa are formed? Would the physical condition of the male germ just before fertilization have any bearing on heredity?

FRANK E. WIEDEMANN, M.D., Terre Haute, Ind.

ANSWER.—Practically always only one ovum is expelled from one or the other ovary during each monthly cycle; hence only one ovum can be fertilized. Ovaries may or may not alternate in ovulation. Occasionally two ova are expelled at the same time or very close together and, if both are fertilized, twins result. Ovulation is controlled by an anterior pituitary hormone. Probably only one ovum is expelled because the amount of anterior pituitary hormone is sufficient to stimulate ovulation in only one follicle. If more anterior pituitary is injected into animals, more follicles can be made to expel ova. In fact, even during early pregnancy in rabbits it is possible to induce ovulation by the injection of anterior pituitary. The ova thus expelled are normal and possess the capacity for fertilization and development.

Spermatozoa are capable of living a few days in the testicles and seminiferous tubules. If coitus or ejaculation does not take place within a reasonable length of time, the spermatozoa in the genital tract die just as any other type of cell does. Spermatozoa are constantly being formed in normal men. At the time of an orgasm, not all the sperm in the genital tract are expelled at one time. Some deep down remain there or reach higher parts. It is probable that, when defective sperm fertilize normal ova, miscarriages result. In these cases the fetuses may or may not be normal. Some abnormal conditions are hereditary and, although sperm transmit some of these abnormalities, the gross physical condition of the sperm may nevertheless be normal. Definitely abnormal sperm are probably incapable of fertilization.

AUTONOMIC IMBALANCE

To the Editor:—A man, aged 45, has complained for fifteen years or more of a constant burning sensation in the left lower quadrant, discomfort and slight distention. He has weakness and there is some perspiration of the hands. There is no nausea, vomiting or melena. The entire examination of the chest is negative. There are no masses in the abdomen. There is no rigidity. A series of roentgenograms of the gastro-intestinal tract, including the gallbladder, was negative. Two blood tests showed 5,000,000 erythrocytes and 90 per cent hemoglobin; leukocytes numbered 7,800, with 1 per cent eosinophils, 45 per cent polymorphonuclears, 47 per cent lymphocytes and 7 per cent mononuclears. The Schilling count gave no myelocytes, no juveniles, 8 per cent basophils and 37 per cent segmented cells. The Wassermann reaction was negative. Sometimes the skin appears slightly dusky or tanlike. What must I consider?

M.D., Massachusetts.

ANSWER.—A clinical condition that has persisted over a period of fifteen years and has produced no demonstrable structural changes is likely to have its origin in a functional disturbance. The patient described might well fall into the group said to suffer from autonomic imbalance of the vagotonic type. With a normal total leukocyte count and a lack of abnormalities the differential count shown does not seem particularly significant. There is no unanimity of opinion regarding the importance placed by Schilling on small variations in the differential count. It is interesting to note, however, that Schilling considers a lymphocytosis with a normal white count a diagnostic feature in vagotonic states.

Schilling cites the following as typical of "vagotonia": total white count, normal; basophils, 0; eosinophils, 4 per cent; neutrophils, 45 per cent; lymphocytes, 45 per cent; monocytes, 6 per cent; myelocytes, 0; juveniles, 0; stab cells, 1 per cent; segmented cells, 44 per cent. With the exception of a slightly higher percentage of eosinophils, this count shows a striking resemblance to the one exhibited by the patient under discussion.

PAROXYSMAL NOCTURNAL DYSPNEA, OR CARDIAC ASTHMA

To the Editor:—I should appreciate a discussion, from the points of view of pathologic physiology and of therapy, of the symptom complex of paroxysmal nocturnal dyspnea encountered in cases of hypertensive cardiovascular disease.

PHILIP SIEGEL, M.D., Beacon, N. Y.

ANSWER.—Cardiac asthma is the preferred term to describe the attacks mentioned. R. S. Palmer and P. D. White (The Clinical Significance of Cardiac Asthma, THE JOURNAL, Feb. 9, 1929, p. 431) and Sylvester McGinn and P. D. White (*New England J. Med.* **207**:1069 [Dec. 15] 1932) have reviewed the largest collection of these important cases. The symptom complex is truly asthmatic in nature and is fundamentally of cardiac origin. The exact mechanism is not known but it is apparently induced most often by failure of the left ventricle to respond to an increased functional demand. It occurs so frequently, though not necessarily, at night with the patient asleep, that it appears to be associated with an increase in the volume of blood in the pulmonary field as the result either of the effect of gravity in the recumbent position or of insufficiency of the left ventricle, or to both of these factors. As a result of this reduction of vital capacity the respiratory center is subjected to excess reflex stimulation and as sleep becomes lighter the nervous mechanism gradually becomes freed from its normal sedation and at a critical point responds, producing violent dyspnea.

The immediate treatment is to reduce the sensitivity of the respiratory center, which is done specifically by morphine. Preventive treatment is the same as that of chronic congestive heart failure; namely, rest, reduction diet, diuresis and digitalis. The presence of the symptom complex indicates that the therapeutic regimen has been inadequate.

COITUS DURING MENSTRUAL PERIOD

To the Editor:—Will you kindly give me a detailed discussion on the subject of intercourse between husband and wife during her menstrual period. What are the dangers, if any? Will too much sexual excitement produce pelvic congestion with noticeable symptoms and should this result in abnormal menstrual flow? If such is the case, what are the diagnosis, symptoms and treatment?

M.D., Maryland.

ANSWER.—There are no statistics to be found in medical literature on this question and practically no discussion. As an almost universal rule coitus is not deliberately engaged in during this time, mainly for esthetic reasons. The German sexologist Rohleder actually advises coitus on the last day of the period, on the theory that it is a good time for impregnation. Investigations on the behavior of spermatozoa in the female genitals have demonstrated live spermatozoa in the uterus during the menstrual period. Thus in one case at least the menstrual blood was not inimical to the vitality of the spermatozoa. Coitus during menstruation is so rare that there are not a sufficient number of cases recorded from which general deductions can be made.

NEOARSPHENAMINE IN UNDULANT FEVER

To the Editor:—I have recently been informed of a physician who has successfully treated several cases of undulant fever by intravenous injection of neoarsphenamine. I have been unable to locate any literature on this type of treatment. Is there any rationale for neoarsphenamine in undulant fever?

M.D., Oregon.

ANSWER.—Conflicting reports have appeared in medical literature regarding the efficacy of neoarsphenamine therapy in undulant fever. Simpson (*Ann. Int. Med.* **4**:238 [Sept.] 1930) found this method to be ineffective. The common denominator of the methods of treatment which have proved most effective in the management of undulant fever, such as Brucella melitensis vaccine, brucellin (Huddleson), typhoid vaccine and artificially induced fever therapy, has been the production of a febrile response. There does not appear to be any rational basis for the employment of neoarsphenamine therapy in undulant fever.

OSTEOMYELITIS AND OSTEOPOROSIS AFTER INJURY

To the Editor:—Will you be kind enough to let me know whether a man could develop an osteomyelitis or at least an osteoporosis showing up in a roentgenogram if he was injured Aug. 20, 1937, at 1:30 p. m. and came to a physician August 23 with an infection of the left index finger.

NATHAN TANDET, M.D., New York.

ANSWER.—It is possible that an osteomyelitis might develop in three days following an injury but it is quite unlikely that osteoporosis would be demonstrable in an x-ray film three days after an injury. More time than that would necessarily have to elapse before the calcium content of the bone could be sufficiently reduced to cause this phenomenon to be present.

ADULTERATION OF MILK AND GOVERNMENT STANDARDS

To the Editor:—Is there any simple test to show whether or not there is any powder in milk to make it thick or cream appear thicker?

M.D., Ohio.

ANSWER.—There is no simple test to detect adulteration of milk or cream. A publication of the department of agriculture of the state of Ohio entitled "Ohio Food, Dairy and Drug Laws and Sanitary Regulations and Standards" provides considerable information about the legal requirements for milk and other dairy products.

BENZOIC AND SALICYLIC ACIDS WITH CALAMINE AND PHENOL

To the Editor:—Would calamine 1 drachm (4 Gm.) and phenol 10 grains (0.65 Gm.), together with benzoic acid 1 drachm (4 Gm.) and salicylic acid one-half drachm (2 Gm.), as much as will suffice, with a plain ointment base have any chemical or physiologic incompatibility, or would this be in any way undesirable? Do you think the calamine and phenol would detract from the value of the benzoic and salicylic acids?

M.D., Georgia.

ANSWER.—There is no incompatibility in the prescription.

EXCESSIVE BEER DRINKING

To the Editor:—Is there any known remedy for excessive beer drinking? Can this remedy be administered without the patient's knowledge?

SIGMUND R. NOWAK, M.D., Adamstown, Md.

ANSWER.—No reference has been found to any recognized specific remedy for excessive beer drinking. The sanatorium treatment, which has been extensively used for chronic alcoholism, cannot be applied without the patient's knowledge.

Council on Medical Education and Hospitals

ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE

Thirty-Fourth Annual Meeting, held in Chicago, Feb. 14 and 15, 1938

(Concluded from page 1309)

DR. J. W. BOWERS, Fort Wayne, Ind., in the Chair

THE FEDERATION OF STATE MEDICAL BOARDS

FEBRUARY 15—AFTERNOON

SYMPOSIUM ON PROMULGATION OF REGULATIONS AUTHORIZED BY LAW

Nature and Scope of Regulations; Authority for Promulgation; Manner of Promulgation; Proof of Regulations in Court Proceedings

DR. ROY B. HARRISON, New Orleans: In the light of legal principles, we may conclude that a state board of medical examiners may be given the authority to enact only such rules and regulations as relate directly to the subject matter covered by the legislative act and which are reasonably necessary to carry that act into effect. In what detail the legislature must express the intentions sought to be accomplished by the law is a question of fact to be determined, in the event of controversy, by the courts. The question of whether the courts should give a liberal or narrow construction to an act of this kind touches on a much broader subject. From our point of view, the greater the detail in which the legislative intent is expressed, the less the risk of a court throwing the law out as an unconstitutional delegation of legislative power.

Most of the medical practice statutes enumerate the subjects in which the applicant must stand an examination and the educational standards he must meet in order to qualify for the practice of medicine. Under this type of statute, the duty of the board is primarily that of preparing examinations in the designated subjects and ascertaining that the other requirements of the law are complied with. The constitutionality of this type of statute has been upheld by the Supreme Court of the United States in the cases of *Dent* v. *West Virginia* and *State Board of Medical Examiners* v. *Fife,* the latter of which involved the statute of Louisiana.

It has been held that the legislature does not have the right to vest in any board the unqualified and unrestricted power to determine who shall engage in any profession, trade or business. Between this extreme case and the ordinary type of statute is a vast middle ground, within which statutes may be held to be constitutional or unconstitutional, depending on the extent to which the legislative will is expressed in the statute and, to a lesser degree, on whether any particular court applies a liberal or a narrow construction to the act in question.

The second question is the power of regulation that has actually been granted to the board of medical examiners, for, obviously, the legislature may not have seen fit to give to the board of examiners as full authority and power on this subject as it might lawfully do. Under the Louisiana law the type of regulations contemplated are such rulings as the board finds necessary to enable it to operate efficiently and to assure uniformity in the execution of the law. This act does not contemplate the adopting by the board of regulations imposing any fundamental requirements. Under a law less specific than the Louisiana type of statute, the regulations of the board of examiners would, of necessity, cover a greater scope.

It might seem desirable to make the statutory law as general as possible, so that the board of examiners should, as a body of experts, have the power to determine from time to time some of the fundamentals of the subject. The only disadvantage of this type of law is its constitutional uncertainty.

Most state constitutions contain specific requirements as to the method of promulgating laws adopted by the legislature. The most usual requirement is by publication in the official journal. In any instance in which the law has specifically provided a method of promulgation, it is clear that such method must be followed in order for the rules and regulations to have legal effect. The supreme court of Louisiana has held that rules and regulations of the board of health need be promulgated only in the manner required by the legislative act authorizing their adoption and that the constitutional provision prescribing the method of promulgating statutes is not applicable. In the past ten years, in lieu of printed booklets, we have multigraphed forms made in the office, for specific applicants, such as "Rules and Regulations Governing Examination in Medicine," "Rules and Regulations Governing Reciprocity" and "Rules and Regulations Governing Endorsement of Applicants to Another State." Approximately 90 per cent of applicants for examination in Louisiana are graduates of either Tulane University or the Louisiana State University Medical Center.

From time to time as important rules and regulations are adopted by our board, especially those referring to requirements for examination and medical licensure, copies are sent to the deans of both universities with the request that they transmit the information contained therein to the medical students. About a month prior to our June meeting, multigraphed forms containing information relative to our requirements for examination, states with which Louisiana has reciprocity and other material, are posted on the bulletin boards of the medical colleges in Louisiana, and it has been our practice to have the presidents of both of the senior medical classes call at our office to be given detailed information for the benefit of the members of the graduating classes. We have found this method of promulgation very effective in Louisiana.

To prove the adoption of any resolution by a state board or commission, it is necessary to produce in court a copy of such regulation certified as correct by the secretary of the board or commission. We feel that every examining board should have a legal adviser. Our experience has shown it to be advantageous for a state examining board to have its own attorney. For many years our board has had its own special attorney, in addition to the public attorneys, and we feel that we would have been much handicapped had we been unable to employ our own counsel.

Formulation and Promulgation of Regulations Authorized by Law for Medical Licensure

DR. THOMAS J. CROWE, Dallas, Texas: Only executives of long experience are aware that there are more incompetents and impostors now preying on sick human beings—attempting to practice medicine—than ever infested any other profession or occupation in the history of the world. Only an executive of long service could possibly know how urgently necessary it is that the reputable medical profession and the state boards should get together and plan to expose effectively the incompetents and impostors, and to formulate and secure if possible the general adoption of a uniform medical practice act, so skilfully constructed and so clearly defined that it cannot be misinterpreted, even by a layman, which will effectively stop the medical pirates now victimizing human sufferers. Such a general law would be more effective than the forty-eight different statutes we now have to deal with. Every essential, fundamental regulation for licensure should be clearly, completely and specifically stated in the statute, so that it cannot be misunderstood or misinterpreted even by a child. I do not believe that discretionary power to modify or waive qualifications essential to the safety of the public should be delegated to an irresponsible, temporary, appointive organization. The phraseology of a law governing such fundamental regulations, particularly in defining what constitutes the practice of medicine or the treatment of a disease or disorder, moral turpitude, unethical practice and malpractice, unprofessional conduct and so on should be so completely defined as to eliminate any possibility of misinterpretation.

To clarify the point I shall quote the definition of the practice of medicine, as defined in the Texas act. The definition reads as follows: Who shall be regarded as practicing medicine? 1. "Any person who shall publicly profess to be a physician or surgeon and shall treat or offer to treat any disease or disorder, mental or physical, or any physical injury or deformity by any system or method or to effect cures thereof, or 2. Who shall treat or offer to treat any disease or disorder, mental or physical, or any physical injury or deformity by any system or method, and to effect cures thereof and charge therefor, directly or indirectly, money or other compensation." Notwithstanding our definition seems to be as nearly fool proof as it was possible to make it, we sometimes have trouble in getting a conviction because of lack of completeness; because of our failure to cover the use of the hands in making so-called adjustments and the like. Since the most flagrant of our violators assert that they never professed to be a physician or surgeon, that they do not give medicine of any kind, that they do not treat a disease or disorder, that they simply adjust the spine, it is not always possible to convince all jurors that one who does not profess to be a physician or surgeon nor treat a disease or disorder nor give medicine of any kind, only adjust the spine, should be convicted of practicing medicine. Our law is also deficient in that it fails to define the acts which constitute moral turpitude, malpractice, unethical practice and unprofessional conduct. Unless all these acts are completely defined in the statute, the outcome of a case must depend on the opinion of the trial judge, as to the intention of the legislature which enacted the law, and on the interpretation of the jury as to what constitutes a violation of the law.

I believe that education of the public to realization of what modern scientific medicine has actually done for suffering humanity in the last hundred years is far more convincing and important to the peoples of the world, and that such realization eventually will more certainly, completely and permanently stop medical piracy and racketeering than the most cleverly conceived statute for the inhibition or suppression of activities which the unlicensed, incompetent practitioner, his high-powered attorney, his promoters and his friends refer to as inalienable rights.

In promulgation of its law and its rules and regulations, the Texas board publishes each year, on expiration of the registration period, a "Handbook of Information, with Official List of Authorized Practitioners of Texas for the Year and Extracts of the Law," a copy of which is mailed to every district and every county medical society of the state (134), every district attorney, every county attorney, legislators, Better Business bureaus (500 in the state), state, county and municipal officers, inquiring insurance companies and all who seek information on the law and the rules and regulations of the board, inclusive of the newspapers.

We have a large register, indexed in 120 subdivisions, containing a complete record of every practitioner licensed in Texas since the organization of the present board in 1907, a record of all examinees of this board since 1907, with grades made, general average, and showing whether licensed or rejected, and number and date of license, and a record by serial number of the name of every practitioner to whom a registration permit has been issued since 1932, when registration was adopted.

DISCUSSION

DR. WILLIAM C. WOODWARD, Chicago: There seems to be a confusion in the minds of our secretaries and many laymen as to the difference between our state laws and the regulations made by virtue of those laws. A legislature cannot delegate to any subordinate body its legislative powers. That rule was rather strictly adhered to until, say, within the last quarter of a century, within which time there has grown up a great body of what is known as administrative law. No legislature could write into the statutes every detail of administration and enforcement necessary to insure success. So the courts have recognized that a legislature may delegate to an official body that is charged with the enforcement of the law the duty of

putting in details under the law that are necessary to the accomplishment of some general purpose set out in the statute. Under some authority of that kind our several examining and licensing boards operate. So long as the examining and licensing board promulgates regulations within that limit, the limits necessary to make the law effective, those regulations are valid. The moment the board oversteps the limits and undertakes either to enlarge the medical practice act or to diminish it, the regulation is void. I should divide the regulations that a board may promulgate into two classes. One class has been referred to here as the regulations that are limited in their effect to the board itself. I do not believe that any special authority is necessary to enable a board to promulgate regulations of that sort. The regulations of the second class are those that are intended to govern persons who have no official relation to the board or who have just established official relations of some kind in order to obtain licenses or in order to bring about the revocation of a license or something of that kind. Those regulations must have the certainty of a statute.

The statute that is promulgated by an examining and licensing board, a board made up of scientifically well trained men, ought to be more certain than is the type passed by a state legislature or by Congress. Undoubtedly, in the formulation of those regulations the services of a lawyer are indispensable. In the first place the regulations must be kept within the limits prescribed by the statutes. The regulation must be accurately fitted into the regulations that are already in force. After everything has been phrased in proper form, the regulation must come before the board and be voted on in the ordinary course of business and adopted by the board by the required majority, whatever that may be, all of which should appear in the minutes of the board. It may be desirable to keep a separate record of those regulations. If that separate record is a record that is authorized by law, it may be admitted into court as evidence. Otherwise the best evidence is the minutes of the board that can show just what the regulation is at any given time. There will be little difficulty in certifying to the regulations of a given board within the state in which that board functions. A greater difficulty will arise in connection with applications for licenses in other states, by licentiates of a given board who desire to prove in some foreign state just what the regulations were in the home state at the time of the issue of the license. I think no very exact requirements have been made regarding the certification of copies of the regulations promulgated by some foreign examining and licensing board. If the matter comes into court, the regulations will probably have to be in the form in which they can be certified, in the first place, by the secretary of the board, under the seal of the board, and then certified by some proper court and state officer in order to satisfy the requirements of the other state.

Any one who proposes to apply for a license to practice in a given state ought to be able to turn to a given official record or to obtain from the board an official copy of that record telling him exactly what is required of him. That involves publication somewhere. The best way, in the absence of any express requirement, is publication in some newspaper or in some official state publication provided for the publication of records of that sort. The regulations referred to should cover the form of application, the time of examination, the standards to be set by examination, what constitutes an accredited school, what schools will be recognized and what schools will not be recognized. Possibly they should elaborate on the details looking toward the suspension and the revocation of licenses, which, after all, constitutes one of the functions of the board that is most likely to be called into question in court.

The authority of the boards to make regulations has, I think, been rather loosely construed in many places. To indicate the nature and extent of the authority and the limitations on the authority in some particular cases, I will refer to the statutory provisions in several of the states. In Oklahoma and in Oregon there is an interesting provision providing that the board shall increase the educational requirements for license as educational requirements in other states are increased. Here is a provision in Pennsylvania: "The department of public instruction be and hereby is authorized and directed annually, at least three months prior to the end of the current fiscal year, to fix the fees to be charged by the several professional examining boards within said department during the ensuing fiscal year." That must be done within a stated period or it isn't effective. South Dakota has a very elaborate system of practice. The board there has the power "to license and regulate the practice of medicine and surgery within this state and to make all rules and regulations which may be necessary or expedient to that end." But as in North Carolina, when we examine the context we find that the power of the board is much limited. Utah has an elaborate scheme and, apparently without any statutory authority, has undertaken, as North Carolina has done, to recognize the officers of the Army, Navy and Public Health Service, and diplomates of the National Board of Medical Examiners. A question recently arose in connection with licensure, where an attempt was made to impose practical examinations in connection with reciprocity. That was a case in which reciprocity was authorized, as may be, and the boards agreed between themselves that they would not reciprocate except after a practical examination. I think there is a grave question as to how far that can go. If the board has discretion as to whether it will not license a person by reciprocity, it may impose such a requirement, but where the law fixes the conditions under which reciprocal licenses shall be issued, according to at least one decision, the board cannot go beyond that. I have in mind cases in which the boards have undertaken to impose citizenship requirements, in the absence of anything whatever in the statute authorizing that to be done. It would seem as if the federal government has not placed any prohibition on the incoming of foreigners, and if the state legislature has not imposed citizenship requirements, that is assuming a state legislature can impose citizenship requirements—and concerning that there is serious doubt —certainly it is hardly likely that a board itself can act in such an important function.

DR. CROWE: Is it true that a board must classify the colleges on its own account, and it cannot take an outsider's classification?

DR. WOODWARD: In the state of California that question has arisen, and the recognition of the classification of colleges by the American Medical Association has been sustained. Generally speaking, however, the board must establish its own standards and enforce them. It can, if it sees fit, establish the same standards that the Council on Medical Education and Hospitals established, and it can take evidence of what the Council has done.

The Basic Science Law: Its Purpose and Effect on Registration and Reciprocity

DR. JULIAN F. DU BOIS, St. Paul: Minnesota's law requires that before a candidate may appear before any board for examination whether medical, osteopathic or chiropractic, he must present a certificate in the basic sciences. If a diplomate of the National Board, his part I is accepted in lieu of a basic science examination. The law has worked a hardship on the doctors because it has reduced reciprocity for those with Minnesota licenses, many boards feeling that since we cannot admit their men without a Basic Science Certificate they cannot admit our men without an examination. Since 1937 we have admitted 173 doctors by reciprocity and seventy-three by National Board certificates, and we hope that before many years our difficulties will be ironed out and reciprocity again general. We do not blame these boards but we do feel that the standards of healing have been raised in our state and our public therefore benefited. Before the passage of our basic science and registration laws, investigations and prosecutions were carried on by various law enforcement officers and we do not have an accurate record of this work, although we know it was very haphazard and limited. In the ten years of operation of this law we have had 405 investigations and 138 court cases, with 116 convictions, ten found not guilty, two not indicted, and ten court cases dismissed. These cases have been against the unlicensed, the chiropractors, the osteopaths and, sorry to say, against some medical men. In 1928 we had

162 osteopaths and 493 chiropractors registered. In 1937 we had 160 osteopaths and 398 chiropractors registered. But this doesn't tell the whole story, as during the years from 1922 to 1927 we averaged thirty-nine new chiropractic licenses and eight and one-half new osteopathic licenses a year, while in the ten years of the basic science law we have averaged 4.1 new osteopathic and 1.4 new chiropractic licenses a year. From this you can see that investigations and prosecutions have been regularly carried out and under the supervision of the Minnesota State Board of Medical Examiners; cultists have decreased and better care has been given the sick. The doctors like this law, the public seems satisfied, prosecutions and investigations have been ably carried on, and cultists have decreased. So we feel that the tenets of a public health law have been fulfilled.

DISCUSSION

DR. HAROLD RYPINS, Albany, N. Y.: At other times I have had occasion to take issue with the proponents of the basic science law, but over a period of years I have come to learn that in some jurisdictions there is a great need for such a law. In the few states where there is no legislation authorizing the practice of chiropractors, naturopaths and similar cultists, I believe that a basic science law is unnecessary. However, in the majority of states where legislation does authorize cult practice, I think the evidence is cumulative that the value of the basic science law is sufficient to overcome its nuisance value. However, it is not necessary to have a basic science law in order to have an annual registration, in order to have funds for enforcement, or in order to have adequate enforcement. In New York State, where we have no basic science law, I believe we have other statutes under the medical practice act which are comparable to those that are working so efficiently in Minnesota. The proponents of the basic science law in states where cultists have been authorized to practice make out an excellent case for the law and that the administration of this law in the hands of such men as Dr. Du Bois has done much to break down any former opposition.

Medical Examinations and Licensure

COMING EXAMINATIONS

STATE AND TERRITORIAL BOARDS

Examinations of state and territorial boards were published in THE JOURNAL, April 16, page 1309.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II.* Examinations will be held in all centers where there is a Class A medical school and five or more candidates who wish to write the examination, May 9-11 (limited to a few centers), June 20-22, and Sept. 12-14. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

SPECIAL BOARDS

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: *Oral examinations for Group A and B applicants* will be held at San Francisco, June 13-14. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston.

AMERICAN BOARD OF INTERNAL MEDICINE: *Written examination* will be held at various centers of the United States and Canada, Oct. 17. *Final date for filing applications is Sept. 1.* Chairman, Dr. Walter L. Bierring, 406 Sixth Ave., Suite 1210, Des Moines, Iowa.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *General oral, clinical and pathological examinations for all candidates (Groups A and B)* will be conducted in San Francisco, June 13-14. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh (6).

AMERICAN BOARD OF OPHTHALMOLOGY: San Francisco, June 13; Washington, D. C., Oct. 8; Oklahoma City, Nov. 15. *All applications should be filed immediately and case reports, in duplicate, must be filed not later than sixty days before the date of examination.* Sec., Dr. John Green, 3720 Washington Blvd., St. Louis, Mo.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: Chicago, June 10-11. Sec., Dr. Fremont A. Chandler, 6 N. Michigan Ave., Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY: San Francisco, June 10-11. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

AMERICAN BOARD OF PATHOLOGY: Philadelphia, May 5-6. Sec., Dr. F. W. Hartman, Henry Ford Hospital, Detroit.

AMERICAN BOARD OF PEDIATRICS: New York City, May 3-4; San Francisco, June 12; Detroit, October; Rochester, N. Y., November; and Oklahoma City, November 15. Sec., Dr. C. A. Aldrich, 723 Elm St., Winnetka, Ill.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: San Francisco, June 11. Sec., Dr. Walter Freeman, 1028 Connecticut Ave. N.W., Washington, D. C

AMERICAN BOARD OF RADIOLOGY: San Francisco, June 10-12. Sec., Dr. Byrl R. Kirklin, 102-110 Second Ave. S.W., Rochester, Minn.

AMERICAN BOARD OF UROLOGY: San Francisco, June 11-13. Sec., Dr. Gilbert J. Thomas, 1009 Nicollet Ave., Minneapolis.

Book Notices

Intern Education and Supervision. Prepared by a Joint Committee of the Committee on Medical Education of the Ontario Medical Association, Committee on Medical Education of the Canadian Medical Association and Department of Hospital Service of the Canadian Medical Association. Paper. Pp. 44. Toronto: Canadian Medical Association, Department of Hospital Service, [n. d.].

"The internship has become a very essential part of the clinical preparation of the student in medicine." "The employment of interns implies definite obligations on the part of both the interns and the hospital and its staff." "From the viewpoint of the intern he is there to learn; and he is giving one or more years of his time and is serving with little or no compensation beyond his maintenance. The hospital and its staff therefore should provide adequate facilities for clinical and laboratory training and should give the work of the intern proper professional supervision." These quotations from the introduction to this booklet fairly describe its scope and purpose. Among the topics treated are the purpose of the internship, the medical staff should be intern minded, the induction of interns to their new duties, programs for the instruction of interns, facilities necessary for the interns' work, affiliations with other institutions for special services, the medical library, postmortem examinations, outpatient department, history taking, staff meetings, the social aspects of medical care, medical ethics, and supervision of the intern's health. There is also a discussion of the supervision of intern training and its relationship to medical licensure. This booklet should prove invaluable to hospitals contemplating the establishment of an intern service.

Practical Birth Control: A Guide to Medically Approved Methods for the Married. By Rita Irwin and Clementina Paolone, M.D. Cloth. Price, $1.75. Pp. 172, with 5 illustrations. New York: Robert M. McBride & Company, 1937.

In the preface the authors discuss frankly their attitude on the controversial subject of birth control. They feel that before deciding on pregnancy any woman with diseases of the general system—serious heart or kidney conditions, diabetes, tuberculosis—should consult a physician. The list of these diseases may be increased by including nervous and mental diseases or insanity. Therapeutic contraception in their opinion is warranted for medical reasons when the examination indicates repeated difficult deliveries and when defects and deformities exist. The well known argument that pregnancies should be spaced receives attention; the authors venture the statement that "three babies die who are born less than two years after the last child for only two who die when the interval is longer." Such questions as the age of the mother and the economic question as to the number of children that may be cared for are also considered, leading up to the classic guide to parenthood: "The wise mother and father will plan to have as many children as can be safely carried, safely borne and adequately reared." From this point on the authors launch into the subject in typical pedagogic manner, giving the definition of birth control and the history of contraceptive practices to the present time.

In common with many books addressed to the public, the authors rather "talk down" to the readers. The book, however, does contain information, particularly on how birth begins, that is well epitomized and may be a good source of reference for physicians who wish to cite references to persons contemplating marriage. The discussion of unreliable or harmful methods may be of value to any physicians who wish to impart information on therapeutic contraception, although the figures quoted in some cases lack confirmation. The authors point out that the majority of the medical profession condemn the rhythm method as unreliable and join the chorus of others who state that its effectiveness has not been proved by scientific research.

It is interesting to note that the use of condoms is among the partially reliable methods. This is based on the work of Voge published some years ago, who asserted that 45 per cent of them had imperfections. Some of the statements which are made are subject to question, particularly when it comes to percentages of failures. The authors feel that the use of chemicals or spermaticidal suppositories and jellies, alone, always

involves the element of chance. The approved method is the jelly-pessary procedure. Rather naive is the last sentence of the discussion on the approved method:

> From what has been said about the contraceptive measure approved by medical leaders, it is evident that the pessary-jelly method is harmless and reliable, can be prescribed in all cases where birth control is medically indicated except under unusual circumstances, and is satisfactory from the point of view of personal considerations of wife and husband. Proof has been advanced that the method has been successful in preventing pregnacy 93-97% of the time.

The authors emphasize the value of consulting a physician but continue that if one would rather not go to the regular physician one may obtain information from the American Birth Control League concerning physicians competent to give advice. Reference is also made to lay clinics, contraception clinics and finally warning against commercial clinics, promoted in the interest of proprietary products. In the latter class, of course, one finds much quackery.

All in all the book is one that may be read with profit by those who are entitled to information on this subject. It is clearly printed and is not too long a discourse. The authors are to be commended in their desire to be particularly fair and not too enthusiastic on this subject.

Lehrbuch der biologischen Heilmittel. Von Dr. med. Gerhard Madaus. Abteilung I: Heilpflanzen. Bände I, II und III; Registerband. Paper. Price, 92 marks per set. Pp. 902; 903-1884; 1885-2864, with 1,190 illustrations; 144. Leipzig: Georg Thieme, 1938.

This treatise is perhaps the most extensive and complete work on medical plants ever published in any language. The author has compiled in systematic and readily accessible form information on all the common plants used in therapy. The descriptive sections are unsurpassed; in all some 444 plants, parts of which are or have been included in various pharmacopeias and dispensatories, are described in detail. The botanic name and its etymology are given; the lay designations in all or most of the languages of Europe (and even in a few of the dialects) are set down in addition. A map showing the distribution of the plant is included in each case, followed by an excellent halftone or colored illustration of the plant itself. Botanic and historical data are given, followed by a discussion of the pharmacologic actions and therapeutic uses. Typical prescriptions containing the drug are set down at the end of each description. Though some of the general material will be chiefly of historical interest, other parts are devoted to valuable discussions of recent developments in phytochemistry and the like. Especially useful are the sections devoted to the occurrence in plants of various chemical substances of pharmacologic interest. References to the literature, ancient and modern, are given in profusion. An extensive index in a separate volume completes the work; this index is divided into four sections: Latin botanic names, common German designations, chemical substances and therapeutic index. These books, representing the culmination of a lifetime of labor devoted to the subject by the author, are invaluable for reference.

Food Technology. By Samuel C. Prescott, Sc.D., Dean of Science, and Health, Department of Biology and Public Health, Massachusetts Institute of Technology, and Bernard E. Proctor, Ph.D., Associate Professor of Food Technology and Industrial Biology, Massachusetts Institute of Technology. Cloth. Price, $5. Pp. 630, with 70 illustrations. New York & London: McGraw-Hill Book Company, Inc., 1937

This book constitutes a reference work covering many phases of food technology which have not heretofore been generally available to the average person. The names of the authors have long been associated with scientific contributions to the processing of foods and the book represents the fruition of many years of experience. There are twenty-two chapters which provide technical information regarding the commercial preparation of the most important foods of both plant and animal origin. Wheat, corn and minor cereals, vegetables, fruits, sugars, meat, fish and poultry products, milk and dairy products, spices, condiments, vegetable oils and fruit juices are discussed in detail. There are also chapters covering adequately in general terms the commercial processes of baking, canning, refrigeration and dehydration. The book tells all about how foods are produced and prepared for the market and it tells the reasons for each process. The book should be valuable to food manufacturers and all those whose work is concerned with the supervision or inspection of food supplies. Although it provides considerable technical information, it is written in an easily understandable style. The authors state that a more detailed technical discussion of certain of the food industries is contemplated in the near future.

The Human Body. By Logan Clendening, M.D. Third edition. Cloth. Price, $3.75. Pp. 443, with 106 illustrations by W. C. Shepard and Dale Beronius and from photographs. New York: Alfred A. Knopf, 1937.

Since its first publication, some 200,000 copies of this book have been distributed to American readers. In his preface Dr. Clendening points out that he has revised almost every page and that the chapters on nutrition and the ductless glands have particularly needed complete recasting to bring them into line with the rapid progress that is being made in these departments. He also added a separate chapter on the infectious diseases. His philosophy on medical matters has not considerably changed, so that the original philosophy and a number of the original jokes still remain. The book is illustrated mostly with line drawings taken from illustrations in various medical works. The style of the author and his humanness make his book on the human body the attractive work that it is. His chapter on the relations of the mind to the body is a forthright and honest analysis of the power of suggestion and its effects on human beings, which would overcome a good deal of superstition and quackery if it was more widely read and distributed. For a general public audience, the chapters on pathologic tissue changes and on tumors might have been more simplified. For instance, the author says "In the internal organs the result of thrombosis or of an embolus is an infarct. An infarct is an area of tissue which has undergone or is undergoing necrosis more or less complete as a result of arterial thrombosis to the part." Notwithstanding the fact that he has previously defined thrombosis, embolism, infarct and necrosis, this statement could have been written in more understandable English. Nevertheless, even with these slight faults, the book merits even greater circulation than it has already had.

Volume jubilaire en l'honneur de Monsieur Louis E. C. Dapples, docteur h. c. de l'Université de Lausanne, président du Conseil d'administration de Nestlé and Anglo-Swiss Holding Company Ltd. pour son soixante-dixième anniversaire. Boards. Pp. 804, with illustrations. Vevey: Nestlé & Anglo-Swiss Holding Co., Ltd., 1937.

Louis Dapples was president of the board of management of the important world-wide Anglo-Swiss Holding Company, Ltd. This book was intended to be a jubilee volume in honor of the seventieth anniversary of the company president. It might be considered instead as a memorial tribute; the distinguished financier died just before the book was published. The volume consists of numerous tributes showing the extent of M. Dapples' activities and the esteem in which he was held by his business and professional associates. The bulk of the volume, however, consists of scientific and medical papers contributed by French, German, Italian, Belgian, Swiss, English, Spanish, Netherland and American investigators. Twenty-four papers from medical institutions, including reviews, case reports, laboratory and clinical studies, and fifteen papers from the different Nestlé laboratories are provided. The book is a fitting tribute to the man and to the great commercial organization whose destiny through many troublous years he successfully guided.

Lectures on the Epidemiology and Control of Syphilis, Tuberculosis, and Whooping Cough, and Other Aspects of Infectious Disease. By Thorvald Madsen, M.D., Director of the State Serum Institute of Denmark, Copenhagen. The Abraham Flexner Lectures Series Number Five. Published for Vanderbilt University. Cloth. Price, $3. Pp. 216, with illustrations. Baltimore: Williams & Wilkins Company, 1937.

The Abraham Flexner lectureship was established in 1927 at the Vanderbilt University School of Medicine by Mr. Bernard Flexner of New York. The income is used to secure as lecturer, at intervals of two years, some eminent physician or scientist who is enabled by the terms of the gift not only to deliver a course of lectures but also to become a member of the medical faculty for a period of two months. The fifth and most recent lecturer in this series was Dr. Thorvald Madsen, who is director of the State Serum Institute of Denmark, Copenhagen, and chairman of the Health Committee of the League of Nations.

The five formal lectures delivered by him are now republished in book form to reach, it is hoped, a wider audience. The first is on the control of venereal disease in Denmark with special reference to syphilis, the second on the mechanism of bacterial infection, the third on tuberculosis in Denmark, the fourth on the influence of seasons on infection and the fifth on whooping cough. In each of these fields Denmark, and especially the investigators connected with Madsen's Serum Institute, have contributed pioneer investigations. Each lecture forms in itself a brief but scholarly treatise on the subject, and it would seem that no one who purports to keep an authoritative stand in any one of these fields can afford not to avail himself of the advantages and pleasure attendant on reading them.

Medicine: Essentials for Practitioners and Students. By G. E. Beaumont, M.A., D.M., F.R.C.P., Physician to the Middlesex Hospital. Third edition. Cloth. Price, 21s. Pp. 780, with 74 illustrations. London: J. & A. Churchill, Ltd., 1937.

For this edition the articles on several subjects, including pneumonitis, arachnoiditis, Niemann-Pick disease and barbiturate poisoning, have been rewritten. Several therapeutic additions have been made, including the use of prontosil, congo red, benzedrine and gold salts. Many other sections have been altered or revised. The book does not include sections on psychologic or dermatologic medicine, but even with those omissions the 700-odd pages are scarcely enough for adequate discussions of the remaining diseases—in fact, some sections are scarcely more than catalogues. The book suffers from the obvious necessity of discussing many diseases in limited space, and much essential information about many diseases has not been included. To beginning medical students, however, whose necessities require only the more prominent features of a large number of conditions, it may be useful. It seems doubtful whether it will replace in this country any of the excellent medical textbooks of indigenous origin.

A Dissertation on Acute Pericarditis. By Oliver W. Holmes. Boards. Price, $7.50. Pp. 39. Boston: Welch Bibliophilic Society, 1937.

The Welch Bibliophilic Society here makes available an essay by Oliver Wendell Holmes, written in three days as a thesis in connection with the receipt of the M.D. degree from Harvard in 1836. It is published without any correction of spelling, punctuation or other editing. The essay was not previously published and has been unnoticed in the archives of the Boston Medical Library until the present time. It is a model for a medical essay, revealing in spots the humor of its distinguished author. Particularly witty was the selection as the opening quotation of the following: "The heart is deceitful above all things."—Jeremiah.

Microbiology in the Preservation of Animal Tissues. By R. B. Haines, B.Sc., Ph.D. Department of Scientific and Industrial Research. Food Investigation, Special Report No. 45. Paper. Price, 65 cents. Pp. 85, with 20 illustrations. New York: British Library of Information; London: His Majesty's Stationery Office, 1937.

This little brochure outlines under three headings the problems connected with the preservation of meat. The first deals with how bacteria gain access to tissues. The second is concerned with some aspects of the physiology and biochemistry of bacteria and of the tissues of the host. The third part takes up the control of infection and the growth of bacteria, fungi and yeasts. There is an appendix containing a description of methods and apparatus for investigations on the preservation of meat. There is a bibliography containing 261 references. The author points out that successful storage of animal tissues is primarily an exercise in applied microbiology.

The Essentials of Pharmacology, Materia Medica and Therapeutics for Medical Students. By D. M. Macdonald, M.D., F.R.C.P.E. Cloth. Price, 7s. 6d. Pp. 279. London: Henry Kimpton, 1938.

This small book is intended to be a prescriber's handbook to enable him to conform with the British pharmacopeia. It may also serve as a student's textbook, most especially for the purpose of brief review. A feature of particular interest in connection with each of the more improtant drugs is the item of "prescribing note," which suggests suitable methods of administration and of disguise. As is characteristic of our British confrères, the old system of weights and measures is employed exclusively and the attempt is made throughout to inculcate prescription writing in Latin.

Miscellany

THERAPEUTICS AND PROPHYLAXIS OF MALARIA

Conclusions of Malaria Commission of the League of Nations

In 1935 the Malaria Commission of the League of Nations arranged for experiments to be made on the treatment and prophylaxis of malaria with synthetic drugs and with quinine so as to compare their efficacy. These experiments were conducted according to a plan which had been prepared beforehand. They covered 12,288 subjects and were carried out in Algeria, Italy, the Federated Malay States, Rumania and the Union of Socialist Soviet Republics under the direction of Prof. Edmond Sergent, Professor Bastianelli, Dr. Neave Kingsbury, Professor Ciuca and Professor Serguieff, respectively.

The commission has drawn up the text of its fourth general report on the basis of lessons to be learned from these experiments. It represents the unanimous views of the commission and will shortly appear in the Bulletin of the Health Organization. The annexes will include an account of the experiments, a bibliographic review and the text of the observations made by the members of the Malaria Commission.

Following are the conclusions of the report:

ACTION OF QUININE AND OF SYNTHETIC PRODUCTS ON THE MANIFESTATIONS OF MALARIAL INFECTION

Quinine.—A minimum daily dose of 0.5 Gm. of quinine hydrochloride sometimes suffices to cause a temporary disappearance of the trophozoites of Plasmodium vivax, but a mean daily dosage of 1 Gm. for from five to seven days is often necessary to cause the trophozoites to disappear (on an average on the third day) and not to make their reappearance in the peripheral blood until after a latent period of varying length, in the course of the first relapse. In quartan (P. malariae) the same effects are usually obtained. In infections with P. falciparum the average effective daily dose should be fixed at about 1.3 Gm. to produce analogous results. In some countries it is necessary to use 2 Gm. to obtain a rapid effect on the clinical attack and on the parasites. With the usual dose of 1 Gm. the trophozoites generally disappear one day later, on the average, than in the case of P. vivax; sometimes their resistance continues even longer.

Quinine, in the doses indicated, exercises its parasiticidal activities on the young forms of P. vivax and P. malariae capable of producing gametocytes and also on fully developed gametocytes. On the fully developed gametocytes of P. falciparum quinine has only a slight action; but it also impedes the formation of the pregametocytes of this species. It may thus be regarded as directly schizonticidal and indirectly gametocidal in the case of P. falciparum.

On acute clinical symptoms of primary infection quinine, in the indicated doses, has a definite action from the third day onward (second paroxysms of fever) in benign tertian; its action is less reliable or less rapid, according to the strain of P. falciparum concerned, on attacks of malignant tertian, which often continue until the fifth dose (third or fourth paroxysm).

On frequency of relapses in general, quinine has a marked effect which is, however, influenced by individual factors and by the strain of parasite. The treatment of primary P. vivax or P. malariae infections with quinine in the usual doses (1 Gm. daily) is followed by relapses in a proportion of individuals which may be as high as 50 per cent.

Action of quinine on splenomegaly, when suitable treatment is applied in each attack, has proved of real efficacy in endemic regions, especially among children. It is but transient, however, if the community concerned is subject to a high proportion of relapses or is exposed to frequent reinfections.

Quinine treatment with the usual doses does not affect the patient's general condition adversely and generally has no depressive or toxic effect, if the period of administration is limited to the strictly necessary number of days. In such a case there is no good reason for thinking that this treatment hinders the processes of immunization, but ill effects may occur when treatment is unnecessarily protracted.

Atabrine.—In daily doses of 0.3 Gm. (for adults) atabrine has a slightly more rapid action on P. vivax trophozoites than quinine in the usual dose of 1 Gm. The trophozoites disappear on an average after the third dose, and in some cases even after the second. This parasiticidal action appears to continue for a longer period in that the phase of latency of the disease (absence of clinical symptoms) is established more certainly and lasts longer after the end of treatment with atabrine than with quinine. On the trophozoites of P. malariae, the action of atabrine is of the same nature. On the trophozoites of P. falciparum atabrine is equally in advance of quinine in certain cases; but the differences between the strains of parasites prevent the drawing of uniform conclusions. The trophozoites of P. falciparum disappear from the peripheral blood after the fourth dose of atabrine in 90 per cent of cases.

Action of atabrine on the gametocytes is of a similar nature to that of quinine; it has no effect, from the point of view of devitalization, on the gametocytes of P. falciparum. But the action on gametocytes already present in the blood is perhaps slightly more marked than that of quinine, particularly as regards the gametocytes of P. vivax and P. malariae.

Action on clinical symptoms of an acute attack is marked, both in benign tertian and in malignant tertian. In some endemic regions, where there may be special strains of P. falciparum, the therapeutic action of atabrine is more energetic on malignant tertian than on benign tertian; but, in other cases, the contrary seems true. This is why some practitioners and malariologists in tropical countries prefer to use quinine during the first days of the acute attack and to continue with atabrine thereafter. In benign tertian the fever nearly always falls after the first three therapeutic doses of atabrine—that is, by the second attack. In malignant tertian the fever falls almost invariably by the third attack.

Action of atabrine on relapses is slightly more effective than that of quinine, especially in the case of benign tertian and of certain strains of malignant tertian.

The spleen rate in communities treated with atabrine seems to decrease more slowly than in communities treated with quinine, but the effects of the drug continue to be felt for a longer time during the observation period after the end of the treatment, the decrease in the percentage of enlarged spleens continues longer, and the return of the splenic index figures to their former high level occurs a little later.

Action of atabrine on the general condition of patients seems to be determined by factors which, after this form of treatment, are still not entirely known; that is, by the action of the drug on the organic defenses in general and on the processes of immunization. The yellow coloration of the skin produced by atabrine is a disadvantage, especially during prolonged prophylactic treatments.

Plasmochin.—The action of plasmochin on the trophozoites of P. falciparum is almost nil. It acts to some extent on the trophozoites of P. vivax and especially on those of P. malariae. With small nontoxic doses of plasmochin associated with the usual doses of quinine or atabrine, better results are sometimes obtained on the trophozoites of P. vivax and even of P. falciparum.

Plasmochin acts on gametocytes of the three species, but especially on those of P. falciparum, which are practically unaffected either by quinine or by atabrine. In minimum doses of 0.02 Gm., plasmochin devitalizes the gametocytes of P. falciparum and at the same time diminishes their numbers.

There is no advantage in using plasmochin alone for the treatment of the clinical symptoms of an acute attack in any of the forms of malarial infection.

Plasmochin has a definite effect on the frequency of relapses of benign tertian or quartan. In association with quinine or atabrine, or administered after either of these two drugs, it is to a marked degree effective in preventing relapses in benign tertian (except perhaps in the case of a few particular strains) and quartan, and appears similarly to reduce the frequency of malignant tertian relapses.

We do not possess sufficient data to assess the action of plasmochin alone, used either therapeutically or prophylactically, on the state of the spleens in malarial communities, for it is nearly always administered together with other drugs.

The small doses of plasmochin (0.02 Gm., for example) that are being used seem to have no seriously depressing effect on the general state of the patient. That the prolonged use of plasmochin may exert some influence on the formation of hemoglobin must not be overlooked.

Quinine-Atabrine, Quinine-Plasmochin and Atabrine-Plasmochin Combinations.—The few experimental observations that have been published give no indication that there is any advantage in combining quinine and atabrine for purposes of treatment.[1] Further clinical research is required to determine the effects of these two drugs when administered one after the other (usually quinine first and atabrine afterward) in the treatment of acute attacks of certain kinds of infection, especially P. falciparum.

The combined use of quinine with plasmochin produces less frequent and less intense toxic symptoms than that of atabrine with plasmochin. The simultaneous use of quinine and plasmochin (or example, up to 0.02 or even 0.03 Gm. of plasmochin daily for short treatments) therefore does not involve any particular contraindications. Certain authors recommend however that, whenever possible, the two drugs be administered consecutively. For the treatment of adult groups under observation there is, however, no serious disadvantage to be feared from the simultaneous use of quinine and plasmochin, which moreover shortens the duration of treatment.

The association of quinine with plasmochin represents one of the most efficacious methods of treating benign tertian and quartan malaria. Treatment with average doses (from 1 to 1.3 Gm.) of quinine plus plasmochin (even only from 0.02 to 0.03 Gm. twice a week) greatly reduces (perhaps more than any other method) the number of relapses in benign tertian (except, as already indicated, in the case of certain strains) and in some cases also in malignant tertian.

The simultaneous administration of atabrine and plasmochin appears to aggravate the toxicity of each. It should in any case not be adopted without medical supervision. Consecutive treatment with atabrine first and then with plasmochin in suitable doses (0.3 Gm. of atabrine daily for five or seven days followed by 0.02 Gm. of plasmochin daily for five days) has no appreciable influence either in reducing the proportion of trophozoites in the blood or on the clinical manifestations. Like the quinine plus plasmochin treatment, this method has the advantage of decreasing and devitalizing the gametocytes, especially those of P. falciparum. Moreover, it diminishes the number of relapses, both in malignant tertian and, more especially, in benign tertian and quartan.

PRACTICAL SUGGESTIONS FOR TREATMENT AND PROPHYLAXIS

Without presuming to lay down hard and fast rules, the commission believes that it is in a position to give certain indications. Account should, however, first be taken of the following points, on which reservations have been made in the previous pages, with respect not only to the individual treatment of patients but generally also to the application of any therapeutic procedure: (1) the varying reactions of the different parasite strains of the same species and of patients to the drugs; (2) the special indications applicable to the parenteral administration of drugs; (3) the drawbacks of the synthetic products (yellow coloration of the skin by atabrine, toxicity of plasmochin).

Individual Treatment of Patients.—It is always desirable that the doctor should be in a position to diagnose malaria and to determine the species of parasite concerned, by a microscopic examination of the blood.

In ordinary cases of P. vivax (benign tertian) infections, it is almost immaterial whether quinine or atabrine is employed for treatment of the attack. Plasmochin, associated with quinine or atabrine or administered after these drugs, has no appreciably useful effect on the attacks but seems to reduce the frequency of subsequent relapses.

The association of plasmochin with quinine, or its administration after atabrine, is useful in P. falciparum infections, on account of its action on gametocytes and relapses.

1. Professor Rodhain, in a private communication, states that he has recently obtained beneficial effects by this method.

Treatment in the Field.—Atabrine, when used for collective treatment in daily doses of 0.3 Gm. (for adults) for from five to seven days, acts in the same way as quinine in daily doses of from 1 to 1.3 Gm. for from five to seven days or more. There is no reason save financial considerations why either quinine or atabrine should be preferred. The manner in which collective treatment is conducted will depend on the intensity of the endemicity, which is itself the resultant of a series of factors: the incidence of malignant tertian infection (P. falciparum), the virulence of the strains, the sensitiveness of the strains to the various drugs and the susceptibility of various population groups.

Collective treatment with quinine or atabrine may usefully be accompanied or followed by plasmochin treatment, to diminish the number of gametocytes and the risk of relapses.

The choice of the basic drug for collective treatment should be left to the public administrations or malariologic organizations that undertake or control such treatment and will be guided by local and economic considerations as well as by the preferences of the medical profession and of the population. It should be remembered that the choice of drug, as well as dosage and duration of therapeutic administration, should, so far as possible, be directed toward the achievement of the real aim of mass treatment. This aim is to secure the largest number of complete cures in case of malaria and to reduce to a minimum the risk of anopheline infection, either by direct action on the gametocytes or by indirect action on the parasites generally, thereby effecting an eventual reduction in the number of carriers of sexual forms (gametocyte therapy). It would therefore be wise not to rely on plasmochin alone for this second purpose. These considerations also apply to the choice of the basic drug and the manner of its administration to the community either directly associated with or followed by plasmochin.

There are, however, large malarial areas, especially in the tropics, where such mass treatment is impossible of practical application for various reasons, often financial. Under such conditions it is desirable to provide adequate and easily available treatment for the clinical manifestations of the disease, so that the morbidity, the mortality and the physical incapacitation of the afflicted persons are diminished. Such treatment has very often to be placed in the hands of laymen for distribution, and little or no direct medical supervision is possible. In these circumstances, the cinchona alkaloids appear to be the more suitable drugs.

Mass Drug Prophylaxis.—This has a twofold purpose: (1) to protect the population undergoing prophylactic treatment from the clinical manifestations of endemic malaria, in order that its working capacity and comparative standard of health may be safeguarded without injury to its preimmunization, even in areas in which it is exposed to repeated reinfection; (2) to reduce, in due course, the sources from which the local mosquitoes may be infected.

No prophylactic method, unless applied to disciplined communities under stringent supervision, is capable as yet of attaining these two objects. Special stress should be laid on the desirability and the difficulty of promoting the immunization process in the population, which depends on the degree of tolerance to infection and on repeated reinfection. At the same time one wishes to avoid the risks attendant on the presence and persistence of such latent infections in the community.

Experience has shown, at all events, that useful results can be obtained with daily doses of quinine (0.4 Gm.) administered during the whole of the malaria transmission season and even for a few weeks longer. This is also true of biweekly doses of atabrine (from 0.2 to 0.4 Gm. a week) administered in certain conditions. With the latter method (biweekly atabrine), which has given encouraging results, further trials would be desirable. The daily dose of 0.05 Gm. of atabrine recommended for prophylactic purposes has proved inadequate. The harmlessness of quinine makes it a suitable drug for administration by subordinate personnel without constant medical supervision, whereas such supervision is essential in the case of atabrine.

Plasmochin should not be distributed for prophylactic treatment otherwise than under direct medical control. Its use in mass prophylaxis would be justifiable only if administered to a disciplined population, which should be kept under constant medical care. It is useful more especially for the purpose of ultimately reducing the number of gametocyte carriers and arresting the transmission of infection to the anopheles. Plasmochin is certainly the gametocidal agent *par excellence*, especially where P. falciparum is concerned. But both quinine and atabrine also exercise in the latter case a gametocidal action by destroying the sexual forms in process of development.

The real efficiency of such methods in the field is, moreover, largely dependent on a highly important epidemiologic factor; namely, the children. The proportion of gametocyte carriers is much higher among children than among adults, given the same environmental conditions (village, house, family) in respect of endemicity and anophelism. Children, on the other hand, are more difficult to subject to regular treatment, and finally the doses and form of administration of atabrine and plasmochin to children cannot be regarded as finally settled.

Drug Eradication.—Experience has so far shown that the eradication of malaria from a locality by the curative and prophylactic treatment with the drugs at present available is practically impossible. It is impossible to reach, in sufficient time, all the inhabitants of an area or even of a small village. Moreover, while curative and prophylactic treatment may greatly diminish the morbidity, it cannot suppress the parasites in all the carriers.

COMMENT

In this report the commission has not considered the question of expenditure entailed by treatment and prophylaxis campaigns, which depends on the price of drugs and the cost of the staff. It would, however, emphasize the great importance of this problem in connection with the choice of drugs to be used for curative or prophylactic mass treatment.

Among those drugs, quinine still ranks first in current practice by reason of its clinical effectiveness and almost complete absence of toxicity, coupled with the widespread knowledge of its use and dosage. As regards the synthetic products, the commission hopes that it has discharged the duty which devolved on it by giving an account of the present state of our knowledge regarding the possible use of atabrine and plasmochin. In certain circumstances, as has been shown, these drugs—representing a notable scientific advance—possess a very special value.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Arteriosclerosis, Trauma and Cerebral Hemorrhage.—An automobile backed into Heath, a man of 63, bruising his arms. There was no fracture or severe lacerations. He died fifty-six days thereafter from a cerebral hemorrhage. Attributing the death to the accident, the widow brought suit against the driver of the car and its owner. From a judgment for the plaintiff the defendants appealed to the court of appeals of Tennessee, middle section.

There was evidence that Heath had had arteriosclerosis for a number of years and that a few months prior to the accident his systolic blood pressure was from 150 to 160. At the trial, the undisputed medical testimony was that the cause of a cerebral hemorrhage is high blood pressure acting on blood vessels weakened by disease, and that such degeneration of the blood vessels is a progressive disease requiring years of time to weaken the blood vessels to the danger point. Arteriosclerosis results from a variety of causes, such as senility, overeating, excessive use of tobacco or alcohol, and certain diseases of the blood. Medical witnesses for the defendants testified that, if by any possibility a trauma could cause a cerebral hemorrhage, it would necessarily occur immediately after the injury, not several weeks later. A physician who testified for the plaintiff concurred in this view, testifying that "it would be kind of hard" to "figure how a bruise on the arm would cause apoplexy two months later." While there was some evidence that an injury such as Heath suffered might temporarily

increase the blood pressure, there was no evidence that, as a matter of fact, his blood pressure was higher at any time after the injury than before.

In view of the variety of causes of arteriosclerosis and high blood pressure, the progressive nature of those diseases and the absence of evidence excluding other causes, the finding by the jury that the cerebral hemorrhage suffered by Heath was caused by the injury inflicted rested, in the opinion of the court, on speculation. The court of appeals therefore reversed the judgment of the trial court, set aside the verdict of the jury, and dismissed the plaintiff's suit.—*Willis v. Heath (Tenn.), 107 S. W. (2d) 228.*

Evidence: Testimony of Physician Based on Medical History as Related by Examinee Inadmissible.—The opinion of a physician, says the Supreme Court of Minnesota, as to a person's condition, based wholly or in part on the history of the case as told to him by that person, is inadmissible in evidence where the physical examination made by the physician is made for the purpose of qualifying the physician to testify as a medical expert. The circumstances under which the descriptive statements of a sick or injured person as to the symptoms and effects of his malady and the opinion of the expert witnesses based thereon are admissible in evidence were stated in *Sund* v. *Chicago, R. I. & P. Ry. Co.,* 164 Minn. 24, 204 N. W. 628, as follows:

> First, they must have been made to a medical attendant for the purpose of medical treatment. Second, they must relate to existing pain or other symptoms from which the patient is suffering at the time, and must not relate to past transactions or symptoms, however closely related to the present sickness. Third, such statements are only admissible when the medical attendant is called upon to give an expert opinion based in part upon them.

The danger of admitting such testimony is apparent. When a physician is consulted for the purpose of treatment, it may be assumed safely that the patient will tell the truth to the physician since he is interested primarily in being cured. However, when a person goes to a physician for the purpose of qualifying the latter to testify, the natural tendency and inducement would be to the contrary.—*Preveden v. Metropolitan Life Ins. Co. (Minn.), 274 N. W. 685.*

Workmen's Compensation Acts: Employer's Liability for Hospital Expenses in Excess of Statutory Limit.—Finch was injured in the course of his employment. An official of the defendant company, the employer, took him to the plaintiff hospital and instructed the superintendent to admit the workman and to procure a named physician to attend him. Later the employer refused to pay the hospital bill, and the hospital sued the employer. The court of appeals of Tennessee affirmed a judgment in favor of the hospital entered by the trial court, and the employer petitioned the Supreme Court of Tennessee for certiorari.

The employer contended that, since it was operating under the Tennessee workmen's compensation act and since the hospital knew that the workman was its employee, the extent of its liability was $100, the maximum amount specified in the act that an injured workman can recover from his employer for hospital services. Compensation acts, answered the court, determine the rights of persons to whom such acts are applicable, that is, employers and employees; they do not reach contracts between physicians or hospitals and employers. While the court doubted that there was any express contract between the hospital and the employer in the present case, the court did think there was an implied contract. At common law, when a person secures services to be rendered, whether rendered to himself or to another, there is an implied contract to pay for such services. For reasons of humanity an exception is made generally in favor of a person calling a physician for another. Otherwise a neighbor or stranger might hesitate to call a physician to attend a stricken man unable to make such call himself. This exception, however, does not apply to a person under a legal obligation to supply medical services to another, as was the employer in this case.

The Supreme Court, therefore, affirmed the judgment of the trial court in favor of the hospital.—*Weakley County Hospital v. Kentucky-Tennessee Light & Power Co. (Tenn.), 107 S. W. (2d) 226.*

Society Proceedings

COMING MEETINGS

American Medical Association, San Francisco, June 13-17. Dr. Olin West, 535 North Dearborn St., Chicago, Secretary.

American Academy of Pediatrics, Del Monte, Calif., June 9-11. Dr. Clifford G. Grulee, 636 Church St., Evanston, Ill., Secretary.

American Association of Genito-Urinary Surgeons, Atlantic City, N. J., May 2-4. Dr. Henry L. Sanford, 1621 Euclid Ave., Cleveland, Secretary.

American Association of Industrial Physicians and Surgeons, Chicago, June 6-9. Dr. Volney S. Cheney, Armour and Company, Union Stock Yards, Chicago, Secretary.

American Association of Medical Milk Commissions, San Francisco, June 13-14. Dr. Paul B. Cassidy, 2037 Pine St., Philadelphia, Secretary.

American Association of Pathologists and Bacteriologists, Atlantic City, N. J., May 3-4. Dr. Howard T. Karsner, 2085 Adelbert Road, Cleveland, Secretary.

American Association of the History of Medicine, Atlantic City, N. J., May 2. Dr. E. J. G. Beardsley, 1919 Spruce St., Philadelphia, Secretary.

American Bronchoscopic Society, Atlantic City, N. J., Apr. 30. Dr. Lyman Richards, 319 Longwood Ave., Boston, Secretary.

American Dermatological Association, Del Monte, Calif., June 9-11. Dr. Fred D. Weidman, 36 Hamilton Walk, Philadelphia, Secretary.

American Gastro-Enterological Association, Atlantic City, N. J., May 2-3. Dr. Russell S. Boles, 1901 Walnut St., Philadelphia, Secretary.

American Gynecological Society, Asheville, N. C., May 30-June 1. Dr. Richard W. TeLinde, 11 East Chase St., Baltimore, Secretary.

American Heart Association, San Francisco, June 13-14. Dr. Howard B. Sprague, 50 West 50th St., New York, Secretary.

American Laryngological Association, Atlantic City, N. J., May 2-4. Dr. James A. Babbitt, 1912 Spruce St., Philadelphia, Secretary.

American Laryngological, Rhinological and Otological Society, Atlantic City, N. J., Apr. 27-29. Dr. C. Stewart Nash, 277 Alexander St., Rochester, N. Y., Secretary.

American Medical Women's Association, San Francisco, June 12-14. Dr. Helen A. Cary, 1634 N.E. Halsey St., Portland, Ore., Secretary.

American Neurological Association, Atlantic City, N. J., May 2-6. Dr. Henry A. Riley, 117 East 72d St., New York, Secretary.

American Ophthalmological Society, San Francisco, June 9-11. Dr. Eugene M. Blake, 303 Whitney Ave., New Haven, Conn., Secretary.

American Orthopedic Association, Atlantic City, N. J., May 3-5. Dr. Ralph K. Ghormley, 110 Second Ave. S.W., Rochester, Minn., Secretary.

American Pediatric Society, Bolton Landing, N. Y., June 9-11. Dr. Hugh McCulloch, 325 North Euclid Ave., St. Louis, Secretary.

American Proctologic Society, San Francisco, June 11-13. Dr. Curtice Rosser, 710 Medical Arts Bldg., Dallas, Texas, Secretary.

American Psychiatric Association, San Francisco, June 6-10. Dr. W. C. Sandy, State Education Bldg., Harrisburg, Pa., Secretary.

American Radium Society, San Francisco, June 13-14. Dr. F. W. O'Brien, 465 Beacon St., Boston, Secretary.

American Society for Clinical Investigation, Atlantic City, N. J., May 2. Dr. J. M. Hayman Jr., 2065 Adelbert Road, Cleveland, Secretary.

American Society of Clinical Pathologists, San Francisco, June 9-11. Dr. A. S. Giordano, 531 North Main St., South Bend, Ind., Secretary.

American Surgical Association, Atlantic City, N. J., May 2-4. Dr. Charles G. Mixter, 319 Longwood Ave., Boston, Secretary.

Association for the Study of Allergy, San Francisco, June 9-10. Dr. J. Harvey Black, 1405 Medical Arts Bldg., Dallas, Texas, Secretary.

Association for the Study of Internal Secretions, San Francisco, June 13-14. Dr. E. Kost Shelton, 921 Westwood Blvd., Los Angeles, Secretary.

Association of American Physicians, Atlantic City, N. J., May 3-5. Dr. Hugh J. Morgan, Vanderbilt University Hospital, Nashville, Tenn., Secretary.

California Medical Association, Pasadena, May 9-12. Dr. F. C. Warnshuis, 450 Sutter Street, San Francisco, Secretary.

Congress of American Physicians and Surgeons, Atlantic City, N. J., May 3-4. Dr. John T. King Jr., 1210 Eutaw Place, Baltimore, Secretary.

Connecticut State Medical Society, Groton, June 1-2. Dr. Creighton Barker, 258 Church St., New Haven, Secretary.

District of Columbia, Medical Society of the, Washington, May 4-5. Dr. C. B. Conklin, 1718 M St. N.W., Washington, Secretary.

Florida Medical Association, Miami, May 9-11. Dr. Shaler Richardson, 111 W. Adams St., Jacksonville, Secretary.

Georgia, Medical Association of, Augusta, Apr. 26-29. Dr. Edgar D. Shanks, 478 Peachtree St. N.E., Atlanta, Secretary.

Hawaii Territorial Medical Association, Honolulu, May 20-22. Dr. Douglas B. Bell, Dillingham Bldg., Honolulu, Secretary.

Illinois State Medical Society, Springfield, May 17-19. Dr. Harold M. Camp, Lahl Bldg., Monmouth, Secretary.

Iowa State Medical Society, Des Moines, May 11-13. Dr. Robert L. Parker, 3510 Sixth Ave., Des Moines, Secretary.

Kansas Medical Society, Wichita, May 9-12. Mr. C. G. Munns, 112 West Sixth St., Topeka, Executive Secretary.

Louisiana State Medical Society, New Orleans, May 2-4. Dr. P. T. Talbot, 1430 Tulane Ave., New Orleans, Secretary.

Maryland, Medical and Chirurgical Faculty of, Baltimore, Apr. 26-27. Dr. Walter Dent Wise, 1211 Cathedral St., Baltimore, Secretary.

Massachusetts Medical Society, Boston, May 31-June 2. Dr. Alexander S. Begg, 8 The Fenway, Boston, Secretary.

Missouri State Medical Association, Jefferson City, May 2-4. Dr. E. J. Goodwin, 634 N. Grand Blvd., St. Louis, Secretary.

Nebraska State Medical Association, Lincoln, Apr. 26-28. Dr. R. B. Adams, Center-McKinley Bldg., Lincoln, Secretary.

New Hampshire Medical Society, Manchester, May 17-18. Dr. Carleton R. Metcalf, 5 South State St., Concord, Secretary.

New Jersey, Medical Society of, Atlantic City, May 17-19. Dr. Alfred Stahl, 55 Lincoln Park, Newark, Secretary.

New Mexico Medical Society, Santa Fe, June 6-8. Dr. L. B. Cohenour, 219 West Central Ave., Albuquerque, Secretary.

New York, Medical Society of the State of, New York, May 9-12. Dr. Peter Irving, 2 East 103d St., New York, Secretary.

North Carolina, Medical Society of the State of, Pinehurst, May 2-4. Dr. T. W. M. Long, Roanoke Rapids, Secretary.

North Dakota State Medical Association, Bismarck, May 16-18. Dr. Albert W. Skelsey, 20½ North Broadway, Fargo, Secretary.
Ohio State Medical Association, Columbus, May 11-12. Mr. C. S. Nelson, 79 East State St., Columbus, Executive Secretary.
Oklahoma State Medical Association, Muskogee, May 9-11. Dr. L. S. Willour, Third and Seminole, McAlester, Secretary.
Philippine Islands Medical Association, Zamboanga City, Apr. 27-29. Dr. A. S. Fernando, 817 Taft Ave., Manila, Secretary.
Rhode Island Medical Society, Providence, June 1-2. Dr. Guy W. Wells, 124 Waterman St., Providence, Secretary.
Society for the Study of Asthma and Allied Conditions, Atlantic City, N. J., Apr. 30. Dr. W. C. Spain, 116 East 53d St., New York, Secretary.
Society of Surgeons of New Jersey, Hackensack, May 25. Dr. Walter B. Mount, 21 Plymouth St., Montclair, Secretary.
South Carolina Medical Association, Myrtle Beach, May 17-19. Dr. E. A. Hines, Seneca, Secretary.
South Dakota State Medical Association, Huron, May 9-11. Dr. Clarence E. Sherwood, 102½ Egan Ave. S., Madison, Secretary.
Texas, State Medical Association of, Galveston, May 9-12. Dr. Holman Taylor, 1404 West El Paso St., Fort Worth, Secretary.

Current Medical Literature

AMERICAN

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American Heart Journal, St. Louis

15: 129-256 (Feb.) 1938

Apnea or Convulsions Following Standstill of the Heart: Clinical and Experimental Observations. P. Formijne, Amsterdam, Holland.—p. 129.
Electrocardiographic Changes Occurring with Alterations of Posture from Recumbent to Standing Positions. L. H. Sigler, Brooklyn.—p. 146.
Use of Sodium Nitrite for Testing Flexibility of Peripheral Vascular Bed. W. C. Beck and G. de Takáts, Chicago.—p. 158.
Electrogram of Cardiac Muscle: Analysis Which Explains Regression or T Deflection. A. G. Macleod, New York.—p. 165.
Effects of Induced Oxygen Want in Patients with Cardiac Pain. R. L. Levy, A. L. Barach and H. G. Bruenn, New York.—p. 187.
*Immediate Effect of Mercurial Diuretics on Vital Capacity of Lungs. J. B. Alsever, Syracuse, N. Y., and S. A. Levine, Boston.—p. 201.
Electrocardiographic Manifestations and Cardiac Effect of Drugs in Vitamin B_1 Deficiency in Rats. S. Weiss, Florence W. Haynes and P. M. Zoll, Boston.—p. 206.
Extra Sounds Occurring in Cardiac Systole. F. D. Johnston, Ann Arbor, Mich.—p. 221.
Pericardial Involvement in Coronary Thrombosis: Note. C. F. Stewart and K. B. Turner, New York.—p. 232.

Effect of Diuretics on Capacity of Lungs.—Alsever and Levine present evidence concerning the value of diuretics in improving the respiratory function in patients with cardiac failure. Nine cardiac patients suffering from breathlessness, in whom there was no evidence of peripheral edema or in whom the edema was only moderate in degree, were selected. In most instances the diuretic used was 1 or 2 cc. of mercupurin (the sodium salt of trimethylcyclopentane-dicarboxylic acid-methoxy-mercury-allylamide-theophylline) given intravenously. In some cases a similar amount of salyrgan or a mercupurin suppository was given. The specific effect of the diuresis on the respiratory mechanism was judged by measuring the vital capacity of the lungs just before the diuretic was injected and twenty-four hours later. Definite improvement in the respiratory function took place in every instance. There were eight patients in whom twelve readings were made before and after a diuresis. The average increase in vital capacity was 290 cc. The smallest increase was 125 cc. and the largest was 600 cc. The diuretic effect of the injections was manifested by the prompt and decided increase in the urinary output and the loss of weight which took place during the twenty-four hour period. The results illustrate the benefit that may be obtained from diuretics in the distressing symptom of breathlessness, entirely apart from the well known effect on edema. It follows that, if a diuretic extracts fluid from the engorged capillary bed of the lungs, both the amount of the remaining air spaces will increase and the capacity for oxygenation of the blood will improve.

American J. Obstetrics and Gynecology, St. Louis

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Correlation of Endometrial Histology with Clinical Symptoms. L. W. Mason, W. C. Black and R. G. Gustavson, Denver.—p. 189.
Hemorrhagic Disease of the Newborn. C. T. Javert, New York.—p. 200.
Relation of Labor to Intracranial Injury in Premature Infant. W. E. Studdiford and H. P. Salter, New York.—p. 215.
Comparative Effects of Pregnancy and Phrenic Nerve Interruption on Diaphragm and Their Relation to Pulmonary Tuberculosis. A. P. McGinty, Atlanta, Ga.—p. 237.
Wheat Germ Oil Therapy: I. Dosage—Idiosyncrasy. E. Shute, London, Ont.—p. 249.
Fetal and Maternal Mortality in Diabetes. Edith L. Potter and F. L. Adair, Chicago.—p. 256.
Roentgenographic Study of Superior Strait During Pregnancy: Preliminary Report. D. J. Thorp and T. Lough, Seattle.—p. 265.
*Certain Relationships of Calcium in Blood Serum to Calcium Balance and Basal Metabolism During Pregnancy. S. I. Pyle, Martha Potgieter and G. Comstock, Yellow Springs, Ohio.—p. 283.
Chemical Pregnancy Test of Visscher and Bowman. W. J. Messinger, M. H. Presberg and M.-D. Fellows, Rochester, N. Y.—p. 295.
*Results with Visscher-Bowman Pregnancy Test. R. D. Dunn and F. J. Northway, San Francisco.—p. 298.
*Antuitrin-S Cutaneous Test for Diagnosis of Pregnancy. I. Gersh, Denver.—p. 301.
*Study of "Cold Test" in Normal and in Toxemic Pregnancy. D. E. Reid and H. M. Teel, Boston.—p. 305.
Melanoma of the Female Urethra. Q. U. Newell and W. C. Scrivner, St. Louis.—p. 328.
Gonococcic Peritonitis in Prepubescent Females. B. Notes, Washington, D. C.—p. 331.

Calcium in Blood Serum, Calcium Balance and Metabolism During Pregnancy.—During the last four years, Pyle and his co-workers have observed the three day test samples of mineral balances during pregnancy. The subjects were to weigh their food and to eat the same kind and quantity for three successive days. On the third day the food was sampled and collections of the twenty-four hour excretion of urine and the feces from the corresponding twenty-four hour ingestion were made. On the morning of the fourth day, blood was drawn for serum calcium immediately after the basal metabolic rate was determined. The level of calcium in the food has little effect on the amount of calcium carried in the serum. The fraction of calcium possibly available to the fetus is affected by the oxygen consumption of the mother. This fraction also contains calcium filtered from the maternal system by the kidney. Measuring the serum calcium level alone shows little regarding the ingestion level or the level of calcium in the urine during pregnancy. Serum calcium determinations showed less about maternal weight gain during pregnancy than urinary, food or fecal calcium did. Urinary calcium showed more about oxygen consumption than the level in serum, food and feces did. The fecal level was the most sensitive indicator of weight gain during pregnancy for these subjects, the urinary level being the most sensitive indicator of oxygen consumption.

Results with Visscher-Bowman Pregnancy Test.—Dunn and Northway tested 395 urines by the Visscher-Bowman method for the determination of pregnancy. Correct reactions were obtained in 84.8 per cent of 250 known pregnancies, 87.6 per cent of sixty-five suspected pregnancies and 54.8 per cent of sixty-two nonpregnancies. Urines of low specific gravity or containing unusual amounts of catabolic reducing agents tend to give false reactions. The test in its present form is subject to too high a percentage of error to replace the Friedman and Aschheim-Zondek tests.

Gonadotropic Substance for Diagnosis of Pregnancy.—Gersh carried out the gonadotropic substance cutaneous test for pregnancy on 113 persons. Fifty were normal men and nonpregnant women, forty-eight were known cases of pregnancy of a duration of two or more months and fifteen were from one to nine days post partum. The results of the reaction show the test to be entirely unreliable.

Study of the "Cold Test" in Normal and in Toxemic Pregnancy.—Reid and Teel performed the "cold test" at intervals of from four to six weeks throughout pregnancy and the puerperium on thirty-four normal patients. The results on normal and toxemic pregnant patients fail to support the suggestion that the test might reveal impending toxemia. Nor did they find the test of practical value in the differential diagnosis of pregnancy toxemias. The marked variations in response in

different patients of each clinical group, as well as considerable differences in the response of the same patient at different times, would exclude any value for the test in differential diagnosis for any individual case.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

39: 161-320 (Feb.) 1938

The Unity of Medicine. A. C. Christie, Washington, D. C.—p. 161.
Adaptation as Factor in Cure of Cancer by Radiation. J. Ewing, New York.—p. 165.
Reminiscences of a Radiologist. H. K. Pancoast, Philadelphia.—p. 169.
*Air Myelography: Substitution of Air for Lipiodol in Roentgen Visualization of Tumors and Other Structures in Spinal Canal. B. R. Young and M. Scott, Philadelphia.—p. 187.
*Roentgenologic Aspects of Mastoiditis. R. Schillinger, Brooklyn.—p. 193.
Maxillary Sinusitis Associated with Pneumonia as Seen in the Winter of 1936. B. F. Donaldson and A. Bachman, New York.—p. 202.
Unusual Case of Bilateral Pulmonary Apical Dermoid Cysts. L. F. Craver and J. V. Blady, New York.—p. 205.
Calcified Guinea Worm (Dracunculus Medinensis): Report of Five Cases. Arline M. Beal, Guntur, South India.—p. 210.
Idiopathic Familial Generalized Osteophytosis. E. Freund, Los Angeles.—p. 216.
Roentgenologic Studies of Megacolon Treated by Sympathectomy. E. M. Van Buskirk, Fort Wayne, Ind.—p. 228.
*Effect of Irradiation on Normal Blood Cells as Determined by Blood Count. K. Kornblum, F. Boerner and S. G. Henderson, Philadelphia.—p. 235.
Roentgen Treatment of Lymphadenoma. N. S. Finzi, London, England.—p. 261.
Thymus: Effect of Atrophy of Thymus Following Roentgen Irradiation: Notes on Changes Observed on Body Growth, the Gonads, Pituitary and Adrenals. J. Gershon-Cohen, H. Shay, S. S. Fels, T. Meranze and D. Meranze, Philadelphia.—p. 263.
Treatment of Subacute and Chronic Sinusitis by Roentgen Radiation. H. B. Smith and A. C. Nickel, Bluffton, Indiana.—p. 271.
Simultaneous Cross Radiation. M. A. Loebell, Zanesville, Ohio.—p. 274.
Roentgen-Ray and Electrical Protection with Reference to Roentgen Tubes. M. J. Gross, Chicago.—p. 278.
Diffraction Studies on Human Bone: Preliminary Report. L. Reynolds, Henrietta S. Hayden and K. E. Corrigan, Detroit.—p. 286.

Air Myelography.—Young and Scott have used subarachnoid injections of air at the Temple University Hospital since January 1936 in any patient suspected of having a tumor of the spinal cord or any other space-taking lesion of the spinal canal. Their studies emphasize the accuracy of the method; in each of their thirteen cases the exact level of the lesion, demonstrated by air myelography, was verified by laminectomy. The efficacy and simplicity of the procedure cannot be doubted when a complete block exists. Practically this amounts to a lumbar puncture, with injection of a few cubic centimeters of air, and roentgenograms of the spine taken with the patient in the sitting posture. The trapped air is easily visualized on the roentgenogram and the level is thus established. The lumbocaudal sac is easily filled with air and is clearly delineated by it. Nucleus pulposus (or cartilaginous disk) herniations may be discovered if this is done, so there is no reason for the use of iodized oil for this condition unless air studies are negative. The diagnosis of a partial block entails no more work than does a complete one if sufficient air is trapped below the block to see it; but if the air passes into the cranium it is still possible to visualize the lesion at another sitting by replacing spinal fluid with air through cisternal puncture with the patient in the Trendelenburg position. There is practically no pain or untoward effect when from 3 to 6 cc. of air is used. When large amounts are used to outline the lumbocaudal sac or the entire spinal canal the patient should be kept in the Trendelenburg position (from 20 to 30 degrees) for six hours and flat on the back for twelve hours and should be gradually elevated to the erect position over a period of forty-eight hours. If this procedure is followed, little headache results. It is not essential that roentgenograms be taken immediately after the injection of air if the patient is kept in the Trendelenburg position, as air has been found in the subarachnoid space below a complete block for as long as one week after injection.

Roentgenologic Aspects of Mastoiditis.—Schillinger believes that if prophylaxis against mastoiditis is to be practiced it must be applied to every case of suppurative otitis media and that the only available and effective prophylactic agent is roentgen irradiation. In small doses it has a wide margin of safety, is prompt in its action and produces no by-effects. An exposure dose of from 20 to 50 roentgens, administered on about the seventh day of suppuration and repeated at intervals of two or three days for a total of three or four exposures, will materially reduce the incidence of mastoiditis.

Effects of Irradiation on Normal Blood Cells.—To determine the effect of therapeutic irradiation on the erythrocytes and hemoglobin of the circulating blood as revealed by the red cell count and hemoglobin determination and the effect of irradiation on the leukocytes as determined by the white cell count, Kornblum and his associates performed such studies before and after irradiation on 100 unselected patients with benign and malignant conditions, the latter predominating. Roentgen and radium irradiation as applied therapeutically has no significant effect on the red cell count or the hemoglobin content of the blood. Anemia alone is not a contraindication to radiation therapy. Therapeutic irradiation tends to lower the leukocyte count. The greatest decrease occurs in the lymphocytes and then in the neutrophils, with the monocytes and eosinophils being the least affected. There was no apparent relationship between the effect on the leukocytes and the part of the body treated, the amount of irradiation and the period of time during which the patient was irradiated. About five weeks is required after irradiation for the count of the various leukocytes to return to the preirradiation level. A count which does not recover in a period of eight weeks is suggestive of an unfavorable prognosis. Daily intramuscular injections of 2 cc. of liver extract did not prevent the depressing effect of irradiation on the leukocyte count. Irradiation leukopenia does not prevent an increase in the number of leukocytes when infection occurs, but this increase is not as great as occurs in nonirradiated individuals. Intravenous injection of typhoid vaccine, which normally causes a sharp rise in the leukocyte count, produced no significant effect in patients receiving or immediately following a series of radiation treatments. Several months after the cessation of therapy a characteristic response was obtained. Injections of liver extract or typhoid vaccine afford a means of determining whether the blood of an irradiated patient has sufficiently recovered to permit a second series of treatments. It seems inadvisable to permit the neutrophils to drop below 1,000 and the lymphocytes below 250 cells per cubic millimeter of blood. From a practical point of view, the effects of irradiation on normal blood, as determined by the blood count, are of little clinical significance.

American Journal of Surgery, New York

39: 227-476 (Feb.) 1938

Tuberculous Glands of Neck in Children. L. Barrington-Ward, London, England.—p. 229.
Congenital Branchiogenic Anomalies: Report of Eighty-Two Cases. W. E. Ladd and R. E. Gross, Boston.—p. 234.
*Surgical Treatment of Chronic Pulmonary Suppuration in Children, with Especial Reference to Bronchiectasis. T. H. Lanman, Boston.—p. 249.
Management and Treatment of Empyema in Children. G. C. Penberthy and C. D. Benson, Detroit.—p. 267.
Early and Late Treatment of Burns in Children. D. W. MacCollum, Boston.—p. 275.
Compound Fractures in Childhood. F. Beekman, New York.—p. 312.
Osteomyelitis in Children. F. R. Ober, Boston.—p. 319.
Fractures and Dislocations Involving the Elbow Joint in Children. D. E. Robertson, Toronto.—p. 327.
*Primary Bone Tumors in Children. B. L. Coley, New York, and R. L. Peterson, Coeur d'Alene, Idaho.—p. 334.
Intraspinal Tumors in Infancy and Childhood. F. D. Ingraham, Boston.—p. 342.
Congenital Hypertrophic Pyloric Stenosis. E. J. Donovan, New York.—p. 377.
Congenital Malformations of Intestine in Children. T. B. Jones and J. J. Morton, Rochester, N. Y.—p. 382.
Indications for Splenectomy in Childhood: Results in Fifty-Two Operated Cases. L. K. Diamond, Boston.—p. 400.
Hernia in Infancy. Gertrude Herzfeld, Edinburgh, Scotland.—p. 422.
Incarcerated Inguinal Hernia in Infancy and Childhood. A. Thorndike Jr. and C. F. Ferguson, Boston.—p. 429.
Dilated Ureter in Children: Brief Consideration of Its Causes, Diagnosis and Treatment. M. F. Campbell, New York.—p. 438.
Interstitial Radiation Treatment of Hemangiomas. J. B. Brown and L. T. Byars, St. Louis.—p. 452.
Operative Treatment of Cleft Palate. A. B. LeMesurier, Toronto.—p. 458.
Pain Relief for Children. R. M. Waters, Madison, Wis.—p. 470.

Surgical Treatment of Chronic Pulmonary Suppuration.—Lanman states that radical surgical procedures for bronchiectasis have a low mortality rate in children. There have been seven lobectomies for bronchiectasis with no operative deaths

and three total pneumonectomies for bronchiectasis with one operative death. All the patients were less than 12 years of age. The youngest was 6 years old. All were submitted to a one-stage operation. These patients have been observed for from three months to four years. Excluding the one operative death and one other patient who died of brain abscess four months after lobectomy, all the patients are improved or doing well. The foundation of chronic pulmonary suppuration in adults is often laid during childhood. Prevention is better than its treatment. The group of cases that has as its etiologic agent a foreign body is the most obvious type for which preventive measures are useful. It is probable that an earlier and more radical treatment of "chronic unresolved pneumonia" or "chronic pneumonitis," associated with a fibrinous pleurisy but without appreciable free pleural pus, may prevent the establishment of a bronchiectasis or even gangrene. Complete and bacteriologic studies are much to be desired. Such studies may give some reliable information on the etiology and prognosis of certain types of bronchiectasis in children.

Primary Bone Tumors in Children.—Coley and Peterson point out that the early recognition of primary tumors of the bone in children lies in the field of pediatrics and of orthopedic surgery. There are obstacles to be overcome in arriving at a diagnosis. The first of these is the tendency to explain persistent pain in an extremity on the basis of a rheumatic or neuritic condition and to neglect to obtain early roentgenograms of the affected part. Pain not readily explainable on some other grounds should at once arouse suspicion of a primary sarcoma of the bone, and an immediate attempt should be made to establish the diagnosis beyond question. This calls for an early and thorough x-ray examination, to be repeated if inconclusive. Pain is the first and most important symptom; this may precede any visible swelling by weeks or even months. Unless definite signs of an acute infection are present, pain in an extremity in a healthy young person should lead one to suspect the presence of a bone sarcoma even before an external swelling makes it obvious. The acute onset and marked constitutional symptoms that accompany the pain in acute osteomyelitis in children serves to differentiate this condition from sarcoma. A small tumor that has been present without change for several years and is not associated with severe pain is probably benign. On the other hand, pain associated with a tumor of large size or rapid rate of growth points to a malignant process. Again, if the swelling appears promptly after a muscular bruise, grows rapidly at first and then reaches a quiescent state, it is quite probable that the condition may be one of myositis ossificans.

Anatomical Record, Philadelphia

70: 139-236 (Jan.) 1938

Oxydase Reactions as Applied to Megakaryocyte and Blood Platelet of Rat. Christianna Smith, Margaret Robinson and Rebecca Tyson, South Hadley, Mass.—p. 139.
Functional Homeoplastic Grafts of Adrenal Gland of New-Born Rats. G. M. Higgins and D. J. Ingle, Rochester, Minn.—p. 145.
Spermatogenesis in Sex-Reversed Female and in Normal Males of Domestic Fowl, Gallus Domesticus. R. A. Miller, Iowa City.—p. 155.
Persistent Left Superior Vena Cava in Man: Two Cases. J. W. Papez, New York.—p. 191.
Development of Rat Embryos in Circulating Medium. J. S. Nicholas, New Haven, Conn.—p. 199.
Anatomy of Inguinal and Hypogastric Regions of Abdominal Wall. B. J. Anson and C. B. McVay, Chicago.—p. 211.
Volume of Parathyroid Glands of the Albino Rat. C. M. Blumenfeld and Helena M. Rice, Salt Lake City.—p. 227.

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Thoracopagus Monosymmetros: Case. G. Forbes, Aberdeen, Scotland.—p. 237.
Branches of Aortic Arch in 153 Rhesus Monkeys (Second Series). C. F. De Garis, Oklahoma City.—p. 251.
Protoplasmic Films of Fat Cell, Wall of Pulmonary Alveolus and Renal Glomerulus. J. L. Bremer, Boston.—p. 263.
Comments on Origin and Growth Pattern of Thyroid Parenchyma. A. J. Ramsay, New York and Philadelphia.—p. 287.
Improved Histochemical Methods for Chloride, Phosphate-Carbonate and Potassium Applied to Skeletal Muscle. I. Gersh, Baltimore.—p. 311.
Histochemical Studies on Fate of Colloidal Calcium Phosphate in the Rat. I. Gersh, Baltimore.—p. 331.
Differentiation in Culture of Pieces of Early Chick Blastoderm: I. Definitive Primitive Streak and Head-Process Stages. Dorothea Rudnick, Rochester, N. Y.—p. 351.

Annals of Internal Medicine, Lancaster, Pa.

11: 1395-1562 (Feb.) 1938

Importance of Ocular Signs in Diagnosis of Brain Tumor. E. Sachs, St. Louis.—p. 1395.
Thyroid Activity in Chronic Arthritis. W. B. Rawls, A. A. Ressa, B. Gruskin and A. S. Gordon, New York.—p. 1401.
*Plasmapheresis Experiments on Influence of Colloid Osmotic Pressure, Water and Salt in Edema Formation. A. C. Kerkhof, Minneapolis.—p. 1407.
The Doctor Himself as a Therapeutic Agent. W. R. Houston, Austin, Texas.—p. 1416.
Abscess of Mediastinum Following Acute Tonsillitis. C. S. Keefer, Boston.—p. 1426.
Coronary Artery Disease: Historical Sketch. F. T. Fulton, Providence, R. I.—p. 1433.
Effects of Treatment with Radium on Calcium Metabolism in Human Body. J. C. Aub, R. D. Evans, D. M. Gallagher and Dorothy M. Tibbetts, Boston.—p. 1443.
Gonorrheal Endocarditis with Bilateral Parotitis and Toxic Jaundice as Additional Complications. W. R. Steiner and L. L. Walton, Hartford, Conn.—p. 1464.
Nonoperative Treatment of Hyperthyroidism. H. Dennig, Berlin, Germany.—p. 1472.
Digestive and Absorptive Function of External Secretion of Pancreas. M. B. Handelsman, Brooklyn.—p. 1479.

Plasmapheresis and Edema Formation.—His plasmapheresis experiments on dogs prove to Kerkhof that the maintenance of the colloid osmotic pressure at the normal level by some inert colloid (acacia) is sufficient to stop any tendency to edema formation. Even when the protein levels were reduced to values far below the level at which edema usually appears in such an experiment when acacia is not given, edema did not develop. These experiments prove that the tendency to edema formation is a function of the colloid osmotic pressure of the plasma and would tend to show that one of the main functions of proteins in the plasma is the maintenance of a normal colloid osmotic pressure.

Archives of Ophthalmology, Chicago

19: 171-330 (Feb.) 1938

Physical Therapy in Ophthalmologic Practice. S. R. Gifford, Chicago.—p. 171.
Use of Typhoid H Antigen Before Intra-Ocular Operations. A. L. Brown, Cincinnati.—p. 181.
*Ocular Manifestations of Endocrine Disturbance. A. N. Lemoine, Kansas City, Mo.—p. 184.
Tentative Interpretation of Findings of Prolonged Occlusion Test on an Evolutionary Basis. F. W. Marlow, Syracuse, N. Y.—p. 194.
Retained Intra-Ocular Foreign Bodies: Clinical Study, with Review of 300 Cases. W. H. Stokes, Omaha.—p. 205.
Technic of Goniotomy. O. Barkan, San Francisco.—p. 217.
Double Perforations of the Eyeball: Classification. N. I. Medvedef, Stalino, Donbass, U. S. S. R.—p. 224.
Experimental Studies of Ocular Tuberculosis: I. Relation of Ocular Sensitivity to Cutaneous Sensitivity in Systemically Infected Rabbit. A. C. Woods, E. L. Burky and J. S. Friedenwald, Baltimore.—p. 229.
Id.: II. Relation of Ocular Activity to Ocular Sensitivity in Normal Rabbit Infected by Injection of Tubercle Bacilli into Anterior Chamber. A. C. Woods, E. L. Burky and J. S. Friedenwald, Baltimore.—p. 236.
Id.: III. Relation of Cutaneous Sensitivity to Ocular Sensitivity in Normal Rabbit Infected by Injection of Tubercle Bacilli into Anterior Chamber. A. C. Woods, E. L. Burky and J. S. Friedenwald, Baltimore.—p. 245.
Ophthalmology in Aviation. F. H. Thorne, Washington, D. C.—p. 253.

Ocular Manifestations of Endocrine Disturbance.—Because of the facility of studying directly under magnification the living ectoderm, mesoderm and, to a lesser degree, entoderm, and because of the dual control system of the vagus and sympathetic nerves, Lemoine declares that the eye provides an excellent medium for the study of endocrine disturbances. The ophthalmologist should train himself to recognize the signs of endocrine malfunction. Before one attempts to attribute any ocular manifestation to an endocrine disturbance, other disease entities should be eliminated, because in the presence of any other disease one is not justified in making a definite diagnosis of endocrine disease. Glaucoma has frequently been mentioned as being of endocrine origin, but it should not be expected to be the result of a single endocrine syndrome. Some cataracts have been placed in the category of endocrine disturbances by a number of authors, and cataracts have been attributed to hypofunction of the pancreas, the parathyroids, the thyroid, the gonads and the adrenal cortex and to hyperfunction of both the anterior and the posterior lobe of the pituitary gland. The one observation most frequently encountered in patients with cataract (both the congenital and the senile cortical type) is hypothyroidism, and in a great number of these cases there is also an associated

hypogonadism. On a physiologic basis, acquired myopia may possibly be due to endocrine disturbances, either hyperactivity of the adrenal cortex or the posterior lobe of the pituitary gland or hypoactivity of the anterior lobe of the pituitary gland, the adrenal medulla, the thyroid and the gonads. In keratoconus there probably is a relation to some endocrine dysfunction not yet fully understood. Uveitis has been reported in association with endocrine disturbance, but except when it was due to diabetes the symptoms in most of the cases were only suggestive of an endocrine dysfunction. Retinitis pigmentosa has been associated with dysfunction of most of the endocrine glands, but on a physiologic basis it is not likely to be associated primarily with any gland but the pituitary or the adrenal.

Archives of Otolaryngology, Chicago

27: 143-260 (Feb.) 1938

Streptococcic Infection of Lungs from Paranasal Sinuses: Experimental Study. O. Larsell, L. Veazie and R. A. Fenton, Portland, Ore.—p. 143.

Hearing of Speech. D. Macfarlan, Philadelphia.—p. 151.

*Cod Liver Oil for Local Treatment of Tuberculous Pharyngitis and Laryngitis. A. L. Banyai, Wauwatosa, Wis.—p. 154.

Treatment of Recurrent Vertigo (Ménière's Syndrome) by Subtemporal Destruction of Labyrinth. T. J. Putnam, Boston.—p. 161.

Treatment of Lateral Sinus Infections Without Operation on Jugular Vein. E. M. Atkinson, New York.—p. 169.

Otitic Sepsis: Analysis of Twenty-One Cases and Anatomic Study. A. L. Juers, Owensboro, Ky.—p. 178.

Lysozyme of Nasal Mucus: Method of Preparation and Preliminary Report on Its Effect on Growth and Virulence of Common Pathogens of Paranasal Sinuses. S. Daly, New York.—p. 189.

Local Anesthesia for Surgical Treatment of Sinuses. F. T. Hill, Waterville, Maine.—p. 197.

Recurrent Paralysis of Larynx Following Injection of Tetanus Antitoxin: Report of Case. A. H. Neffson, New York.—p. 201.

Phlegmon and Fistula from Calculus of Submaxillary Gland. J. H. Childrey, San Francisco.—p. 204.

Anatomy and Physiology of the Ear. P. E. Meltzer, M. H. Lurie and W. Mueller, Boston.—p. 208.

Treatment of Tuberculous Laryngitis.—Banyai applied cod liver oil topically in 126 cases of tuberculosis of the throat. Of these, ninety-one cases of laryngeal and six of pharyngeal tuberculosis were analyzed. Thirty-seven patients with laryngeal tuberculosis died, twenty-nine in less than two months. Pharyngeal and laryngeal ulcers showed rapid epithelization and healing. A favorable therapeutic response was seen in cases in which there was localized infiltration or vegetative granulation. Laryngeal tuberculosis with marked edema is rather resistant to this treatment. Of ninety-one patients with laryngeal tuberculosis whose treatment lasted from two months to one and a half years, twenty-four remained unimproved, forty-two improved subjectively and objectively and twenty-five were healed. In the majority of the cases in which healing occurred, it was established before the patient recovered from the pulmonary tuberculosis. The evidences of symptomatic relief, such as elimination of pain, dysphagia and irritation in the throat, diminution of the cough and easier expectoration, were promptly noticeable. Restoration of the normal voice, better sleep and improvement in the patient's general well-being accompanied the objective manifestations of healing.

Arch. of Physical Therapy, X-Ray, Radium, Chicago

19: 65-128 (Feb.) 1938

*Relief of Neuritic Pain by Artificial Fever Therapy. A. E. Bennett and P. T. Cash, Omaha.—p. 69.

Immediate and Early Physical Therapy in Fracture Management. C. R. Murray, New York.—p. 74.

The Problem of Specific Effect of Short Waves on Blood Vessels. H. Weisz, J. Pick and V. Tomberg, Vienna, Austria.—p. 79.

Improved Method of Underwater Treatment of Arthritis. J. D. Currence, New York.—p. 84.

Management of Peripheral Vascular Disease. G. de Takáts, Chicago.—p. 88.

Value of Roentgenograms in Fractures. R. W. Fouts, Omaha.—p. 97.

Treatment of Alopecia Areata with Grenz Rays. E. Last and R. O. Stein, New York and Vienna, Austria.—p. 99.

Principles Underlying Modernized Corrective Exercises. H. E. Stewart, New Haven, Conn.—p. 103.

Relief of Neuritic Pain by Artificial Fever Therapy.—At the University of Nebraska, Bennett and Cash have been using the hypertherm for the induction of artificial fever in a large variety of diseases. Up to Jan. 1, 1937, in twenty-six months, they have treated 581 patients, who received more than 2,650 fever treatments. Of these patients, forty have undergone fever therapy in an attempt to obtain relief from severe neuritis, myalgic or radicular painful states. There were twenty cases of sciatic neuritis, six of brachial neuritis, five of toxic infectious polyneuritis and infective neuronitis, three of herpes zoster, two of lymphocytic meningitis and four of miscellaneous arthritic states with secondary neuritis or neuralgia. All types of neuritic pain were relieved immediately, but pain recurred in some cases, especially in the secondary neuritides from compressive lesions. This form of heat therapy (from 103 to 105 F.) is a distinct advance over all local forms of heat in relieving pain. Fever therapy is not recommended to replace other accepted forms of therapy in neuritis but only as an aid in the management. It probably hastens convalescence in the severe toxic infectious polyneuritic states. The physiologic mechanism of general fever induction effecting relief of neuritic pain is not well understood. Undoubtedly the enhanced blood flow and peripheral vasodilatation in the inflamed areas increase tissue oxidation and nutrition. Leukocytosis, phagocytosis and mobilization of immune bodies secondary to induced fever play a part in the absorption of rheumatic deposits, dilution of toxins and the healing of inflamed nerve tissues. The treatments do not interfere with any other indicated therapy and are practically without danger in experienced hands.

Florida Medical Association Journal, Jacksonville

24: 419-466 (Feb.) 1938

Gonorrheal Arthritis. C. R. Burbacher and A. H. Weiland, Coral Gables.—p. 433.

Simplified Method of Treating Fractures of the Shaft of Humerus. C. B. Mabry, Jacksonville.—p. 436.

Practical Applications of Vitamin D. J. S. Hood, Clearwater.—p. 439.

Treatment of Fractures: Recent Changes in Use of Piano Wire and Steel Pins. P. LeBreton, St. Petersburg.—p. 443.

Journal of Immunology, Baltimore

34: 1-90 (Jan.) 1938

Stability and Antigenicity of Staphylococcus Toxoid. J. S. Kitching and L. N. Farrell, Toronto.—p. 1.

Agglutinogens M and N in Anthropoid Apes. A. S. Wiener, Brooklyn.—p. 11.

Ascorbic Acid and Complement Function. E. E. Ecker, L. Pillemer, D. Wertheimer and H. Gradis, Cleveland.—p. 19.

Complementing Activity and Ascorbic Acid Content of Guinea Pig Serums Following Ether Anesthesia. E. E. Ecker, L. Pillemer and D. Wertheimer, Cleveland.—p. 39.

Effect of Ascorbic Acid on Constitution of Complement. E. E. Ecker, L. Pillemer and D. Wertheimer, Cleveland.—p. 45.

Staphylococcus Alum Toxoid. L. N. Farrell and J. S. Kitching, Toronto.—p. 51.

Supplementary Note on Ultrafiltration in Preparation of Pneumococcic Polysaccharides. Rachel Brown and L. K. Robinson, Albany, N. Y.—p. 61.

Sheep Antibody Which Blocks the Prausnitz-Küstner Reaction. M. B. Cohen, and T. Nelson, Chicago.—p. 63.

Photronreflectometer: Instrument for Measurement of Turbid Systems. R. L. Libby, New Brunswick, N. J.—p. 71.

Vascular Processes in Shwartzman Phenomenon as Observed in Pulmonary Reactions. J. M. Weir, Chicago.—p. 75.

Journal Industrial Hygiene & Toxicology, Baltimore

20: 97-190 (Feb.) 1938

Morphologic Changes in Livers of Rats Resulting from Exposure to Certain Chlorinated Hydrocarbons. G. A. Bennett, C. K. Drinker and Madeleine Field Warren, Boston.—p. 97.

*Toxic Encephalopathy and "Granulopenic Anemia" Due to Volatile Solvents in Industry: Report of Two Cases. C. E. Parsons and Malvina E. Moore Parsons, Kingston, N. Y.—p. 124.

*Health Hazards in Manufacture of "Fused Collars": I. Exposure to Ethylene Glycol Monomethyl Ether. L. Greenburg, May R. Mayers, L. J. Goldwater, W. J. Burke and S. Moskowitz, New York.—p. 134.

*Id.: II. Exposure to Acetone-Methanol. L. Greenburg, May R. Mayers, L. J. Goldwater and W. J. Burke, New York.—p. 148.

Effect of Water on Production of Industrial Dust. H. H. Watson, Porton, Wiltshire, England.—p. 155.

Mercury Vapor Detection. L. R. Biggs, Schenectady, N. Y.—p. 161.

Changes in Composition of Blood During Mental and Light Physical Work. R. M. Sklianskaia, C. E. Shakhnovich, A. E. Levina and A. I. Zak, Moscow, U. S. S. R.—p. 169.

Reaction of Hypertensive Patients to Atmospheres Containing High Concentrations of Heavy Ions. L. P. Herrington and C. Kuh, New Haven, Conn.—p. 179.

Encephalopathy and Anemia Due to Volatile Solvents.—The Parsonses report the cases of two young men who worked in a shirt factory in constant contact with volatile solvents which were so concentrated in the air of the "dipping room" that they and the other workers in this room suffered

from burning and watering of the eyes, severe enough to produce conjunctival irritation. The solvents were used for stiffening the collars of shirts. The two patients also showed moderately severe symptoms of: 1. Toxic encephalopathy, as evidenced by personality change, frequent dizzy and faint spells, tendency to sleepiness, loss of all interest in their normal amusements and activities after working hours, general hypertonicity of all skeletal muscles somewhat resembling the rigidity of recuperating tetanus cases, hyperactivity of all reflexes, transitory right ankle clonus, persistent dilation of pupils and sluggishness of reaction of pupils to light and in accommodation, and moderate ataxia and positive Romberg sign. 2. Anemia, which was moderately severe and associated with granulopenia. The toxin had its greatest destructive effect on the neutrophilic leukocytes which circulated in the blood stream, and the bone marrow was so overstimulated to activity in its failing effort to reproduce neutrophilic cells that it poured young forms, such as myelocytes and young neutrophils, into the blood stream. There was a moderate decrease in the number of red blood cells with a high color index. The picture was similar in some respects to that of benzene or radium poisoning. Whereas the weakness and dizziness might possibly have been caused by the anemia, this seems unlikely, especially since these symptoms were more pronounced in the second patient who had the less severe anemia. The continuance of these symptoms for a considerable time after the blood had reached normal levels in both cases also would suggest the assumption that they resulted mainly from a toxic effect on the central nervous system. Patient 1 showed gastrointestinal symptoms with some signs of acidosis, probably due to vomiting. Both men showed a loss of weight. Although there were no signs of renal irritation, the development of a consistent nocturia (twice nightly) in both cases indicated some disturbance in renal function. The fluid in the "dipping tank" contained ethylene glycol monomethyl ether and a substance containing 90 per cent ethyl alcohol, 4.4 per cent methyl alcohol, 4.7 per cent ethyl acetate and 0.9 per cent petroleum naphtha. Removal of the patients from exposure to the volatile toxic solvent, together with treatment for their anemia, resulted in complete symptomatic and objective physical recovery from the poisonous effects on the central nervous system and the blood forming organs with apparently no permanent damage. Follow-up blood counts made eleven months after removal from contact showed continued persistence of neutrophil-lymphocyte relationship and high color index.

Health Hazards in Exposure to a Volatile Solvent.—Greenburg and his associates performed clinical and hematologic studies on nineteen employees in the collar fusing department of a shirt factory in which ethylene glycol monomethyl ether was used in conjunction with denatured alcohol as a solvent for cellulose acetate. All the subjects had abnormal blood pictures. Clinically, however, they fell into three main groups: those with a negative clinical picture, those with abnormal neurologic changes on physical examinations but no symptoms and those with abnormal neurologic signs on physical examinations and symptoms of fatigue and drowsiness. Disturbances of erythropoiesis were found in nine cases. A general immaturity (shift to the left) of the neutrophilic granulocytes was found in every case. The blood platelets were fewer than normal in the majority of the cases and in several cases abnormal platelet forms were found. The blood picture as a whole is believed to be suggestive of a macrocytic anemia associated with a reduction in the platelets and a relatively large number of young granulocytes. The responsibility of ethylene glycol monomethyl ether for these changes is suggested. As a result of the present experience, the concentration of this substance in the air should be kept below 25 parts per million.

Health Hazards in Exposure to Acetone-Methanol.—As a control for their previous investigation, Greenburg and his colleagues also studied nineteen workers exposed to the fumes of acetone and methanol in a collar fusing plant. Physical examinations revealed no abnormalities. Blood studies revealed no disturbances in hematopoiesis. Absorption of acetone was demonstrated by finding this substance in the urine of every worker. The concentration of solvents (25 parts per million of methyl alcohol and 40 of acetone) in the workroom atmosphere was apparently not high enough to cause pathologic changes.

Journal of Pharmacology & Exper. Therap., Baltimore

62: 127-262 (Feb.) 1938

Identification of Active Crystalline Substance from Liver Which Protects Against Liver Damage Due to Chloroform or Carbon Tetrachloride and Study of Related Compounds. R. C. Neale and H. C. Winter, Philadelphia.—p. 127.

Pharmacologic Action of Deuterium Oxide: III. Its Protective Effect on Acetylcholine and Epinephrine. S. B. Bogdanovitch and H. G. Barbour, New Haven, Conn.—p. 149.

Id.: IV. Sympathomimetic Action of Deuterium Oxide in Mice. H. G. Barbour and J. B. Herrmann, New Haven, Conn.—p. 158.

Some Tetrahydroisoquinolines: I. Their Relative Toxicology and Symptomatology. A. M. Hjort, E. J. deBeer and D. W. Fassett, New York.—p. 165.

Autonomic Drugs and Biliary System: I. Action of Acetyl-B-Methyl Choline Chloride (Mecholyl) and Benzyl Methyl Carbinamine Sulfate (Benzedrine Sulfate) on Gallbladder. J. Flexner, M. Bruger and I. S. Wright, New York.—p. 174.

Studies of Cyclopropane: IV. Cardiac Output in Dogs Under Cyclopropane Anesthesia. B. H. Robbins and J. H. Baxter Jr., Nashville, Tenn.—p. 179.

Nor-Epinephrine [β-(3,4-Dihydroxyphenyl)-β-Hydroxyethylamine] as Possible Mediator in Sympathetic Division of Autonomic Nervous System. C. M. Greer, J. O. Pinkston, J. H. Baxter Jr. and E. S. Brannon, Nashville, Tenn.—p. 189.

Microscopic Observations of Pulmonary Artery Reactions. A. J. Gilbert, Cleveland.—p. 228.

Reactions of Carotid Arteries of Small Animals. T. Sollmann and A. J. Gilbert, Cleveland.—p. 236.

Relative Activity of Various Purified Products Obtained from American Grown Hashish. R. P. Walton, L. F. Martin and J. H. Keller, New Orleans.—p. 239.

Toxicity and Anesthetic Potency of Some New Benzoyl Derivatives. R. F. Sievers and A. R. McIntyre, Omaha.—p. 252.

Journal of Thoracic Surgery, St. Louis

7: 235-350 (Feb.) 1938

Bronchospirometry: Review of Present Experiences and Some Further Investigations. H. C. Jacobaeus, Stockholm, Sweden.—p. 235.

Effect of Thoracoplasty on Pathologic Physiology of Respiration. N. L. Kaltreider, W. W. Fray and E. W. Phillips, Rochester, N. Y.—p. 262.

*Lung Volume After Thoracoplasty. J. S. Harter, Sanatorium, Miss.; R. H. Overholt and H. J. Perkin, Boston.—p. 290.

*Pulmonary and Circulatory Function Before and After Thoracoplasty. A. V. S. Lambert, F. B. Berry, A. Cournand and D. W. Richards Jr., New York.—p. 302.

Study of Changes in Cardiorespiratory Physiology Following Total Pneumonectomy in Young Developing Animals. B. N. Carter, J. J. Longacre and L. M. Quill, Cincinnati.—p. 326.

Removal of Large Dermoid Cyst from Anterior Mediastinum. E. V. Smith and R. G. Mills, Fond du Lac, Wis.—p. 338.

Lung Volume After Thoracoplasty.—Harter and his colleagues during the last two and a half years have combined the resection of the upper ribs with a mobilization of the apex, providing vertical as well as lateral collapse of the lung in the upper portion of the chest. An apparently more effective control of tuberculosis follows with less sacrifice of the uninvolved lung. Clinical impressions drawn from 179 patients who have had far-advanced tuberculosis arrested by thoracoplasty and from 121 of these patients who are now working are that the great majority of rehabilitated thoracoplasty patients do very well in respect to pulmonary function. Two observations have prevented the authors from becoming unduly alarmed: 1. Relatively few patients complain of dyspnea on exertion or show other effects of pulmonary deficiency. 2. A few patients who had symptoms such as tightness in the chest, wheezing or dyspnea on slight exertion have been relieved by selective thoracoplasty. The readjustment of the size of the thoracic cage to the size of the healthy lung, the relaxation of distorted pulmonary tissue, the dropping of the hilus and the return of the lower lobe and diaphragm to normal positions may increase the patient's ability to use the remaining uninvolved lung. A significant evaluation of the volume of the lung should be delayed for several months, preferably when the disease is arrested and the patient is ambulatory. Preoperative determinations of the volume of the lung were made on seventy-two consecutive patients with the method of Christie. Postoperative studies were made on thirty-two patients. The interval between the last operation and the determination varied from four to eighteen months. The tuberculosis was apparently arrested and all the patients were ambulatory or working. The postoperative status of the thirty-two patients was that sixteen were rehabilitated and sixteen became ambulatory. The preoperative vital capacity varied from 1,090 to 4,020 cc. and the postoperative from 827 to 3,465. The preoperative volume of the lung was

from 998 to 5,320 cc. and the postoperative from 795 to 3,540. The ages of the patients ranged from 20 to 58 years. There were twelve men and twenty women.

Pulmonary and Circulatory Function After Thoracoplasty.—Lambert and his associates observed eleven patients having pulmonary tuberculosis from the preoperative state through thoracoplasty. They selected three for detailed description. The first had had neither pneumothorax nor phrenicectomy, previous to thoracoplasty. The second had had a phrenic exeresis two years before. The third had at the time of thoracoplasty a partial pneumothorax, also a benign tuberculous empyema in the pneumothorax cavity. The initial and final stages of each are compared. 1. In the first patient after operative collapse of the diseased upper part of the left lung, exertional dyspnea was practically the same as before operation. A decreased breathing capacity, due to the collapse of the wall of the chest, was compensated for by more efficient exchange of air in the remaining good lung: ventilation during exercise was smaller, oxygen utilization of inspired air was greater and there was no accumulation of carbon dioxide in the arterial blood after exercise. 2. In the second patient there was a great reduction of lung volumes and breathing capacity. The response to exercise in the preoperative state showed high ventilation, poor oxygen utilization and low arterial oxygen saturation, indicating inadequate pulmonary function. Results of venous pressure and vital capacity measurements after intravenous infusion suggested some congestion in the pulmonary vascular bed. Functional studies in the postoperative state showed essentially the same abnormalities as in the preoperative state. Dyspnea postoperatively was somewhat increased. 3. In the last patient artificial pneumothorax had failed to collapse the diseased lung but had collapsed the nondiseased lower lobe. A benign tuberculous empyema had developed. Restriction in lung volumes and breathing capacity was marked. During exercise, ventilation was not abnormally large. After exercise there was arterial oxygen unsaturation, large lactic acid accumulation and rise in arterial carbon dioxide tension. Following operative collapse of the diseased lung, arterial oxygen saturation after exercise was normal. Breathing capacity was still much restricted; venous pressure after intravenous infusion was increased greatly. The lower part of the right lobe was then allowed to reexpand gradually when ventilation after exercise became normal, oxygen utilization was good, arterial oxygen saturation was normal and change in the level of carbon dioxide curve was small. Exercise was accomplished without dyspnea.

Journal of Urology, Baltimore

39: 81-222 (Feb.) 1938

Tumors of Adrenal Cortex. A. J. Scholl, Los Angeles.—p. 81.
Prolapse of Female Urethra. N. E. Berry and H. Greene, Kingston, Ont.—p. 92.
Factors Favoring Nonprogression of Certain Tuberculous Lesions of Urogenital Tract. G. J. Thomas, T. J. Kinsella, T. L. Stebbins and C. K. Petter, Minneapolis.—p. 97.
Pathologic and Bacteriologic Processes Present in Prostatitis and Tissue Reaction to Therapy. J. S. Ritter and C. Lippow, New York.—p. 111.
Pyogenic Prostatitis: Clinical Analysis of Immune Response. R. E. Cumming and G. E. Chittenden, Detroit.—p. 118.
Studies of Infections of Vas Deferens. H. A. R. Kreutzmann, San Francisco.—p. 123.
*Relationship of Lesions of Nose, Throat, Accessory Sinuses and the Eye to Chronic Pyogenic Prostatitis. W. K. Haven, Minneapolis.—p. 128.
*Symptoms of Nonvenereal Acute and Chronic Prostatitis. M. B. Wesson, San Francisco.—p. 135.
Treatment of Acute Prostatitis. A. L. Clark, Oklahoma City.—p. 145.
Treatment of Recalcitrant Prostatitis by Drug Injection. O. Grant, Louisville, Ky.—p. 150.
Critical Analysis of Therapeutic Measures in Management of Pyogenic Prostatitis. V. J. O'Conor, Chicago.—p. 156.
Newer Physiology of the Prostate Gland. J. I. Farrell, Chicago.—p. 171.
External Urethrostomy: Experimental Study. W. R. Lovelace 2d, G. J. Thompson and F. C. Mann, Rochester, Minn.—p. 186.
Albumin and Bacterial Urinary Calculi. S. Lubash, New York.—p. 189.
Use of Sulfanilamide in Urogenital Infections. S. A. Vest, H. Harrill and J. A. C. Colston, Baltimore.—p. 198.

Relation of Ocular and Otolaryngologic Lesions to Chronic Prostatitis.—Haven presents four cases to illustrate some of the clinical details in the relation between lesions of the eye, sinuses, tonsils and prostate. Case 1 illustrates that one negative prostatic smear does not prove the absence of prostatic infection. In the first examination of the prostatic secretions there were only five pus cells per high power field. This was an instance of an ocular lesion occurring in the presence of multiple foci. The inflammation of the eyes disappeared after tonsillectomy but recurred and healed only after the prostatic infection was thoroughly treated. Case 2 is an example either of tonsillar infection being overlooked or neglected or of tonsillar infection developing since the last examination. It emphasizes the importance of rechecking the nose and throat for foci when a chronic pyogenic prostatitis is not responding well to treatment. In case 3 there was no history of gonorrhea; the prostatitis was probably of hematogenous origin in connection with an influenza and thrombophlebitis. The chronic sinusitis was a focus which retarded the improvement of the prostatic infection under local treatment. Case 4 is a clinical example of too vigorous prostatic massage precipitating an ocular lesion. The prostatic infection was favorably influenced by sulfanilamide by mouth, and a corneal ulcer in the left eye improved rapidly after the prostatic infection was brought under control. The corneal ulcer in the right eye was healed by nonspecific protein therapy and the elimination of infection in teeth and tonsils. The mechanism by which a focus of infection produces an endogenous ocular lesion may be due to the transfer of bacteria or of bacterial toxins. Recent experimental work indicates the possibility of an allergic phenomenon being involved.

Symptoms of Nonvenereal Prostatitis.—Wesson points out that the incidence of extension of the gonococcus to the prostate is slight. There is commonly present an active nonspecific prostatitis and seminal vesiculitis of true systemic origin or a quiescent infection of local origin, and this is activated by invasion of the urethra by the gonococcus. Acute prostatitis is generally due to urethral instrumentation, an acute nonspecific urethritis, cystitis and the like. Chronic prostatitis is a chronic pyogenic infection of the prostate, having its origin in direct extension from the urethra, or invasion through the blood stream or lymphatics. Whenever a state of chronic congestion continues for any length of time, the resistance of the prostate and seminal vesicles is lowered to such an extent that a nonspecific infection is prone to develop. A patient with a pain in the lower part of the back or one in the groin that extends suprapubically toward the midline below the umbilicus or down into the scrotum, with a prostate and seminal vesicles that are nodular and indurated on palpation, whose prostatic secretion contains pus and dead spermatozoa and who complains of an exacerbation of the pain on massage, has not a beginning hernia or "sacro-iliac slip" but a prostatic backache. The epididymitis that frequently occurs spontaneously is due to an extension of the prostatic infection down the vas. Low back pain with a short period of disability is due to myofascitis, a prearthritic condition, while that of long duration is the result of hypertrophic arthritis of the spine. Attacks of gout are frequently aborted by prostatic massage, the symptoms being in the main due to the coexisting arthritis and not to the gout. In acute prostatitis there is usually urinary difficulty. In chronic prostatitis there are no pathognomonic symptoms of the bladder. Prostatitis usually causes no sexual disturbances, but it may be responsible for every phase of derangement from mild inaptitude to complete impotence. Because of the close relationship between the seminal vesicles, ureters and peritoneum, abdominal symptoms are not uncommon. Intestinal obstruction, alleged to be secondary to pressure of swollen seminal vesicles but probably really due to an adynamic ileus, has been reported. Ophthalmologists have found that iridocyclitis and retinitis are occasionally due solely to prostatitis, as such persist after the removal of infected foci in teeth, tonsils and sinuses but clear up with treatment of the prostate. An infected prostate may simulate lesions in distant parts of the body. Prostatic pain is relayed through the sympathetic system to the primary cells in the ganglions and then referred outward through the various connecting ramifications to the organs which these nerve cells supply, giving rise to symptoms not necessarily of pain but related to the function of the organ affected. The impulse of the pain arising in the prostate may reach the central nervous system along the thoracicolumbar sympathetic nerves, the afferent sympathetics form-

ing synaptic junctions either in the spinal ganglions or in the anterior column of the spinal cord, to be relayed through the somatic or sympathetic efferent systems. The exact level of their entrance into the spinal cord is doubtful.

Laryngoscope, St. Louis

48: 77-156 (Feb.) 1938

Malignant Disease of Nasal Accessory Sinuses, with Review of Eleven Cases. F. R. Spencer, Boulder, Colo., and W. C. Black, Denver.—p. 77.
Vincent's Infection of Mouth, Throat and Larynx: Report of Case. A. J. Wagers, Philadelphia.—p. 122.
Rationale and Treatment of Sigmoid Sinus Inflammation. E. R. Hargett, Washington, D. C.—p. 126.
Hearing Deficiencies in Relation to Speech Defects. H. Newhart, Minneapolis.—p. 129.
Facts and Fallacies of Hearing Tests. W. A. Wells, Washington, D. C.—p. 137.
Suction: Tongue Depressor. S. P. Schechter, New York.—p. 146.

Missouri State Medical Assn. Journal, St. Louis

35: 69-114 (March) 1938

The Management of Infections of Neck and Their Complication: Mediastinitis. H. E. Pearse Jr., Rochester, N. Y.—p. 69.
Diagnosis and Operability of Acute Intestinal Obstruction. P. C. Quistgard, Kansas City.—p. 75.
Use of Intravenous Dial Urethane in Obstetrics: Analysis of 1,200 Cases. D. T. Van Del, Kansas City.—p. 79.
Block of Pudendal Nerve in Obstetrics. S. F. Abrams, St. Louis.—p. 81.
Four Year Study of Obstetrics in the Missouri Methodist Hospital. W. T. Stacy, St. Joseph.—p. 83.
Surgical Treatment of Thyroid Disease. A. D. Haug, Fayette, and C. H. Van Ravenswaay, Boonville.—p. 87.
Appendicitis. E. L. Miller, Kansas City.—p. 91.

Nebraska State Medical Journal, Lincoln

23: 81-120 (March) 1938

Diagnosis and Treatment of Infections of Upper Urinary Tract. C. D. Creevy, Minneapolis.—p. 81.
Blood Changes Associated with Different Splenomegalies. A. S. Rubnitz, Omaha.—p. 87.
Tumors of Neck: Their Diagnosis and Treatment: Part I: Inflammatory Swellings of Neck. N. F. Hicken and A. M. Popma, Omaha.—p. 91.
Protamine Insulin in Treatment of Diabetes Mellitus: Report of Fatal Case of Hypoglycemia. M. Margolin, Omaha.—p. 92.
The Management of Deep Neck Infections. H. N. Boyne, Omaha.—p. 97.

New England Journal of Medicine, Boston

218: 247-284 (Feb. 10) 1938

*Absorption of Glucose from Small Intestine in Deficiency Disease. Juda Groen, Amsterdam, Netherlands.—p. 247.
Plastic Operation for Correction of Hypertrophy of the Breast. H. K. Sowles, Boston.—p. 253.
Racial Incidence in Portal Cirrhosis: Note. W. Richardson, Boston.—p. 257.
Unusual Case of Painless Swelling of Ankle. R. F. Sullivan and H. M. Childress, Boston.—p. 258.
Fibroma of Ovary with Ascites and Pleural Effusion. S. B. Weld, Hartford, Conn.—p. 262.

Absorption of Dextrose from Small Intestine in Deficiency Disease.—Groen studied the absorption of dextrose in three patients suffering from organic disease of the intestine associated with diarrhea (tuberculous enteritis, ulcerative colitis and nontropical sprue). In each case decreased absorption was demonstrated. Among ten patients with various dietary deficiency diseases, diminished absorption of dextrose was found before treatment in three cases of pernicious anemia and in one case of "alcoholic" polyneuritis with pellagra. Absorption of dextrose in these four cases returned to normal after treatment. The absorption of dextrose was found to be normal after treatment had been applied in one additional case of pernicious anemia and in two additional cases of "alcoholic" polyneuritis. However, there was a normal absorption of dextrose in two cases of scurvy before treatment. In cases in which the absorption of dextrose was diminished, the blood sugar showed a smaller rise during the absorption test than in control observations on normal subjects. The flat blood sugar tolerance curve often found in sprue, and sometimes in pernicious anemia and certain other dietary deficiency states, is attributable, at least in part, to a diminished absorptive power of the intestine. The decreased absorption of dextrose in deficiency disease is likely to be a specific effect due to a lack of some component or metabolic derivative of the vitamin B complex.

Rocky Mountain Medical Journal, Denver

35: 89-176 (Feb.) 1938

Surgical Aspects of "Indigestion." E. L. Eliason, Philadelphia.—p. 107.
Present Status of Recent Urinary Bactericides. T. L. Howard, Denver.—p. 115.
Importance of Adequate Treatment of Injuries of the Head. W. M. Craig, Rochester, Minn.—p. 122.
Treatment of Intestinal Obstruction: Its Chemistry and Physiology. J. R. Plank, Denver.—p. 127.
Some Later Developments in Etiology of Cancer: Review of Literature. O. E. Torkelson, Casper, Wyo.—p. 130.
Value of Convalescent Serum in Acute Contagious Diseases. C. M. Hyland, Los Angeles.—p. 132.
Changes in Sodium Chloride Content of Blood Serum in Insulin Treated Cases of Dementia Praecox: Preliminary Report. G. Kersten and E. J. Brady, Colorado Springs, Colo.—p. 138.

Surgery, St. Louis

3: 165-324 (Feb.) 1938

Operation on Defunctioned Distal Colon. H. Devine, Melbourne, Australia.—p. 165.
Acute Cholecystitis: Problems Created by an Attempt to Correlate Its Clinical, Surgical and Pathologic Manifestations. A. Behrend, Philadelphia, and H. K. Gray, Rochester, Minn.—p. 195.
Reconstruction Operation for Diastasis Recti. L. V. Rush and H. L. Rush, Meridian, Miss.—p. 200.
Osteodystrophy of Unknown Etiology: Case Report. E. L. Compere and M. Garrison, Chicago.—p. 203.
Spina Bifida Occulta: Report of Case in Which There Was an Occult Myelomeningocele. H. F. Buchstein and J. G. Love, Rochester, Minn.—p. 215.
Resection of the Elbow Joint. A. J. Davidson and M. T. Horwitz, Philadelphia.—p. 226.
*Extrafascial Apicolysis (Semb). J. W. Gale and P. A. Midelfart, Madison, Wis.—p. 234.

Extrafascial Apicolysis.—Gale and Midelfart report sixty-five instances of thoracoplasty with extrafascial apicolysis (Semb) and eight revision operations. Since the procedure is rather recent, the complications were frequent in the earlier cases. These have been reduced greatly with an increasing experience, a more careful selection of cases and the proper timing of the operative stages. The percentage of cavity closures and sputum conversions has been gratifying. An increasing number of patients are already being discharged from the sanatoriums with the condition arrested. The group of revision operations is too small to evaluate except that the most serious complication to be encountered is the accidental opening of the tuberculous cavity. This is best treated by packing the wound wide open to ensure adequate drainage.

Tennessee State Medical Assn. Journal, Nashville

31: 41-80 (Feb.) 1938

Therapeutic Abortion: Indications and Technic. J. C. Ayres, Memphis.—p. 41.
Lymphopathia Venereum. R. H. Kampmeier, Nashville.—p. 46.
Mucous Colitis, with Especial Reference to Treatment. F. J. Runyon, Clarksville.—p. 53.
Treatment of Pyelitis of Pregnancy. G. A. Williamson, Knoxville.—p. 56.
Résumé of 139 Cases of Functional Neuroses. J. C. Hill, Knoxville.—p. 61.
Sulfanilamide in Treatment of Gonorrhea. T. R. Barry and G. A. Williamson, Knoxville.—p. 63.

Virginia Medical Monthly, Richmond

65: 63-122 (Feb.) 1938

The Diabetic Foot. H. J. Warthen and W. R. Jordan, Richmond.—p. 63.
Tuberculosis: Results of Clinical Survey. C. L. Harrell, A. D. Parker and R. B. Grinnan Jr., Norfolk.—p. 67.
Endocrine Therapy: Its Relation to Ophthalmology and Otolaryngology. H. G. Preston, Harrisonburg.—p. 69.
What Medical and Psychiatric Forces Can Do to Reduce Crime. D. C. Wilson, Charlottesville.—p. 73.
The Truth in Diagnosis and in Therapy. J. K. Hall, Richmond.—p. 75.
Roentgen-Ray Diagnosis and Treatment of Osteitis Fibrosa Cystica. W. P. Gilmer, Clifton Forge.—p. 79.
Early Diagnosis of Gastric Cancer. W. Clarkson and A. Barker, Petersburg.—p. 83.
Placenta Praevia. P. Rucker, Richmond.—p. 85.
Lymphogranuloma Venereum. E. C. Hamblen and G. H. Derieux Jr., Durham, N. C.—p. 90.
European Eye Clinics. C. A. Young, Roanoke.—p. 95.
Traumatic Surgery. M. H. Todd, Norfolk.—p. 98.
Hypertensive Retinosis. F. H. McGovern, Danville.—p. 102.
Pneumococcic Vaginitis Treated with Antiserum: Case. W. Bickers, Richmond.—p. 104.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Ophthalmology, London

22: 65-128 (Feb.) 1938

National Policy to Be Adopted in Tropical Country for Prevention of Blindness. A. F. MacCallan.—p. 65.
Nature of Aqueous Humor. J. D. Robertson.—p. 79.
Significance of Heredity in Ophthalmology: Preliminary Survey of Hereditary Eye Diseases in Tasmania. J. B. Hamilton.—p. 83.
Simple Accessory for the Darkroom. J. Sherne.—p. 109.

British Journal of Physical Medicine, London

1: 1-42 (Jan.) 1938

Some Psychologic Aspects of Physiotherapy. E. Miller.—p. 2.
Clinical Aspects of Short Wave Therapy. E. Schliephake.—p. 7.
Electrical Iontophoresis: Special Indications and Technic. A. P. Cawadias.—p. 11.
Electric Lamps and Auxiliary Heating Appliances. L. G. H. Sarsfield. —p. 17.
Postoperative Infra-Red Irradiation in Relief of Pain and Promotion of More Rapid Healing. R. D. Howat.—p. 23.
*Radiotherapy in Treatment of Eczema. M. Whitby.—p. 25.

Radiotherapy in Eczema.—Whitby states that all rays act by absorption, and the majority of the systems are reached directly or indirectly; ultraviolet rays have not the penetrating power of infra-red rays, but they stimulate the endocrine glands in particular, which in turn cause an acceleration of the calcium metabolism, which is so important in the progress of cutaneous treatments. Calcium can be given by other means, but the results of ray application have more than justified their use, chiefly by their rapid action. Ultraviolet rays stimulate the central nervous system, giving the patient a feeling of well being, but the first and foremost effect aimed at is the relief of pruritus or even pain. Infra-red rays penetrate deeply and in so doing have an analgesic influence on the nerve endings, with the result that the pruritus is kept under control. At the same time they absorb the exudate, thus improving the local blood supply and calcium metabolism; secondary infections soon cease and the results are lasting. Filtered light is a useful adjuvant in this condition; the lamp used is the 1,000 watt carbon filament and the best screen is the red, which not only has sedative effects but also acts as an additional stimulant. There are a series of sound measures for combating cutaneous ailments, but a definite technic is unpractical.

British Journal of Surgery, Bristol

25: 479-722 (Jan.) 1938

Evolution and Development of Surgical Instruments. C. J. S. Thompson. —p. 479.
Vascular Endothelioma of Lung. A. T. Edwards and A. B. Taylor.—p. 487.
Right Duodenal Hernia. M. Paul and W. C. O. Hill.—p. 496.
Congenital Microcolon: Two Cases. J. B. Ewing and W. E. Cooke. —p. 506.
*Chronic Regional Colitis. T. G. I. James.—p. 511.
*Acute Regional Ileitis: Report of Two Cases, with Bacteriologic Findings. R. Mailer.—p. 517.
Chronic Inflammatory "Tumors" of Gastrointestinal Tract. F. G. Ralphs. —p. 524.
Crohn's Disease, or Regional Ileitis. L. Barrington-Ward and R. E. Norrish.—p. 530.
Brain Abscess. G. Horrax.—p. 538.
Torsion of Testicle and Hydatid of Morgagni. J. Lambert and R. E. Smith.—p. 553.
*Surgery of Pineal Organ. C. P. G. Wakeley.—p. 561.
Fractures of Shaft of Femur: New Method of Traction and Immobilization. E. L. Farquharson.—p. 592.
Pneumatocele Capitis. J. B. G. Muir.—p. 603.
Recurrent Intussusception of Jejunum. W. Gissane.—p. 608.
Latent Carcinoma of the Prostate. D. McGavin.—p. 612.
Interlocked Articular Processes Complicating Fracture-Dislocation of Spine: Survey of Some Recent Cases Treated by Open Operation. A. H. G. Munro; foreword by C. G. Irwin.—p. 621.
Fractured Lumbar Spine with Unilateral Dislocation. A. W. Adams. —p. 632.
Fracture of Os Calcis. W. J. Eastwood.—p. 636.
Malignant Disease of Large Intestine. J. Fraser.—p. 647.
Intestinal Strangulation: Depressor Properties of Peritoneal Transudate in Intestinal Strangulation. W. d'A. Maycock.—p. 677.

Chronic Regional Colitis.—James reports a case of chronic nonspecific inflammation of an isolated part of the colon. The condition was established as a clinical and pathologic entity by Moschowitz and Wilensky in 1923. In most of the cases described, the lesion has shown a predilection for the terminal portion of the ileum, but any part of the intestinal tract may be involved. The clinical features of the case presented are typical. Young adults are most commonly affected—men more than women—and the common symptoms are abdominal pains, loss of weight, low grade fever, anemia, diarrhea and a palpable mass in the abdomen. The etiology is unknown. No specific organism has been recovered from the feces, the affected intestinal wall or the lymph glands. Pathologically, the changes are those of a nonspecific granulomatous inflammation associated with ulceration of the mucosa and hyperplastic and exudative changes involving all the layers of the intestine. As the condition progresses, the exudative reaction is followed by fibroblastic transformation, with narrowing of the intestinal lumen. The presence of giant cells in histologic sections has no doubt been responsible for a frequent diagnosis of hyperplastic tuberculosis, especially when the ileocecal region has been involved, but careful microscopic examination does not show the characteristics of tuberculosis. Giant cells are not an essential feature of the pathologic process. The complete absence of any healed or active tuberculosis elsewhere, together with negative tuberculosis tests, is against the lesion being tuberculous. Chronic regional colitis or enteritis may in some respects simulate ulcerative colitis, but the diarrhea seldom approaches in severity that of this disease. In ulcerative colitis there is seldom a marked connective tissue reaction in the wall of the intestine, and a tumorous mass is seldom palpable in uncomplicated cases. Sigmoidoscopy usually shows characteristic changes. If the general condition is satisfactory, resection wide of the affected area is advisable to prevent recurrence at the site of anastomosis. When the general condition of the patient prohibits more radical measures, a short circuiting operation should be performed, with removal of the involved segment at a later date if symptoms persist.

Acute Regional Ileitis.—Mailer discusses the evidence obtained in a case of acute regional ileitis that Streptococcus viridans is the bacterial agent involved. The isolation of this pathogenic organism from the blood stream was suggestive, and, though the handling of the intestine at operation may have been responsible for its appearance in the circulation, the finding is no less valid on that account. Streptococcus viridans is capable of giving rise to a relatively low grade inflammation similar to that present in regional ileitis. Unfortunately the finding of this organism does not solve all the problems connected with the causation of the disease. If acute ileitis resembled most other acute inflammatory conditions in going on to complete resolution, it might be justifiable to regard it as septicemic in origin and its localization in the ileum as being determined by the large amount of lymphoid tissue there. On the other hand, it is probable that the disease usually runs a more chronic course, that an acute flare-up is incidental and is due either to an increased virulence of the organisms concerned or to localized venous thrombosis with some degree of hemorrhagic infarction. The great increase in the amount of fibrous tissue in the wall of the intestine, which was a feature of Jackman's acute cases, would bear this out. The disease therefore has some features in common with chronic ulcerative colitis and has been regarded by some as simply a localized form of this disease. Such a conception does not necessarily minimize the role of Streptococcus viridans as the main bacterial invader, but on the other hand, as in ulcerative colitis, it does postulate some additional factor to account for the susceptibility to the disease and its tendency to chronicity. There is general agreement that acute ileitis should be treated conservatively, as there is a tendency to spontaneous resolution. Laparotomy is, however, always necessary for diagnostic purposes. If the disease has extended beyond the intestinal wall and has caused marked infiltration of the mesentery, spontaneous recovery is less likely and either short circuiting or excision may be necessary. Many patients get well, but whether they remain well indefinitely or by gradual stages acquire the chronic fibrostenotic form described by Crohn is not known.

Surgery of Pineal Organ.—Wakeley states that the surgery of the pineal organ, although yet in its infancy, is advancing rapidly. The symptomatology tends to be more definite: there are usually severe intracranial pressure, headache, vomiting, papilledema, epileptiform fits and some paralysis of the cranial

nerves. The eye signs are definite, with loss of pupillary reaction and failure of upward movement of the eyes. Operations for the removal of pineal tumors have become standardized; and even if the complete removal cannot be undertaken, a postoperative course of high voltage roentgen therapy will complete the cure, as the majority of pineal tumors are radiosensitive. There is no reason why the operative mortality should not be reduced to a low figure and the results become as good as those for the removal of a pituitary tumor. The nine cases observed since 1919 are cited.

International Journal of Psycho-Analysis, London

19: 1-172 (Jan.) 1938

Homosexuality, Magic and Aggression. H. Nunberg.—p. 1.
Intellectual Inhibition and Disturbances in Eating. Melitta Schmideberg.—p. 17.
Transition from Organ Neurosis to Conversion Hysteria. G. W. Wilson.—p. 23.
Remarks About the Relation of Inferiority Feelings to Guilt Feelings. F. Alexander.—p. 41.
Relation Between Physical and Psychic Differences in Boys and Girls: Note. M. N. Searl.—p. 50.
Concerning Psychogenesis of Somatic Disease: Physiologic and Neurologic Correlations with Psychologic Theory. L. Stone.—p. 63.
Ego Development and the Comic. E. Kris.—p. 77.

Irish Journal of Medical Science, Dublin

No. **145:** 1-44 (Jan.) 1938

A Patient of the Renaissance. W. Doolin.—p. 1.
Hysterosalpingography. E. Solomons.—p. 20.
Hysterectomy for Rheumatoid Arthritis. B. Solomons.—p. 28.

Journal of Physiology, London

91: 365-490 (Jan. 14) 1938

Effects of Castration and of Sexual Hormones on Adrenals of Male Rats. Kathleen Hall and V. Korenchevsky.—p. 365.
Response of Denervated Ganglion to Acetylcholine. F. T. v. Brücke.—p. 375.
Lipoid Substances of Ovary During Ova Production in Rana Pipiens. E. M. Boyd.—p. 394.
Factors Affecting Sodium, Potassium and Total Base Content of Anterior Retractor of Byssus of Mytilus Edulis. I. Singh.—p. 398.
Exclusion of Liver in the Rabbit. H. P. Himsworth.—p. 413.
Binocular Summation During Dark Adaptation. R. J. Lythgoe and L. R. Phillips.—p. 427.
Action of Curarine on Respiratory Mechanism. R. West.—p. 437.
Relation of Hypophysis to Changes in Sugar Tolerance and Insulin Sensitivity Induced by Changes of Diet. H. P. Himsworth and D. B. M. Scott.—p. 447.
Action of Tyramine and Adrenalin on Denervated Nictitating Membrane. Edith Bülbring and J. H. Burn.—p. 459.
Carbonic Anhydrase Inhibitor in Serum. V. H. Booth.—p. 474.

Lancet, London

1: 239-298 (Jan. 29) 1938

Origin and Spread of Cancer of Rectum in Relation to Surgical Treatment. C. Gordon-Watson.—p. 239.
Anemia in Preschool Children: Its Incidence in South London. T. Colver.—p. 245.
*Effect of Sulfanilamide on Blood Picture. C. M. Campbell Jr.—p. 247.
*Hormone Content of Ovarian Tumors. Elizabeth H. Lepper, C. L. G. Pratt, Freda B. Pratt and Dorothy M. Vaux.—p. 249.
Response of Pellagrins to Nicotinic Acid. T. D. Spies.—p. 252.
*Pellagra Successfully Treated with Filtrate Factor Obtained from Liver: Case. S. Yudkin, J. C. Hawksley and J. C. Drummond.—p. 253.
A Ward Epidemic of Sonne Dysentery. F. Pygott.—p. 255.
Carbohydrate Metabolism in Anorexia Nervosa. J. H. Sheldon and Freida Young.—p. 257.

Effect of Sulfanilamide on Blood Picture.—Campbell estimated the activity of the bone marrow by enumeration of the reticulocytes and leukocytes in the peripheral blood of ten patients. Whenever possible, observations were made daily or every second day for a definite period before the administration of sulfanilamide, during treatment and for a varying period after cessation of therapy. The duration of the latter period depended on the return to or maintenance of normal levels and the length of stay of the patient in the hospital. In addition to the ten cases, nine others were observed in which less systematic blood examinations were made. In four cases the reticulocyte level was above the normal 2 per cent before treatment was started, which indicates that a mild reticulocytosis is not uncommon in the presence of sepsis. In three of these cases no increase in the reticulocytes by more than 1.4 per cent was observed and in the others there was no rise at all. Of the six cases with normal initial counts three showed an increase above 2 per cent either during the period of treatment or in the after-period; the highest figure reached was 4.6 per cent. All patients returned to their original levels within a week of cessation of therapy. The red cells, hemoglobin and leukocyte levels remained essentially unaffected. In none of the nine patients studied only after therapy had started or was completed was there a rise of reticulocytes above 2 per cent. Moderate doses of sulfanilamide seem to act as a mild stimulus to the bone marrow. Further work is required to determine the relationship of this phenomenon to those cases in which a severe anemia arises.

Hormone Content of Ovarian Tumors.—Lepper and her colleagues tested the fluid from a number of follicular cysts of the ovary for estrogen. The concentration of estrogen in the fluid was of the same order as in the normal ripe follicle. Owing to the increased volume of fluid, the absolute amount of estrogen in the ovary was considerably increased. Characteristic changes were found in the mucous membrane and muscular coats of the uteri. These changes may be more evident either in the mucous membrane or in the muscular coat, and sometimes the two structures are equally affected. Seventy ovarian tumors and the corresponding preoperative urines were examined for the follicle stimulating and luteinizing factors and estrogen. The follicle stimulating factor was found in larger amounts in the cyst fluid and urine in cases of malignant than in cases of innocent ovarian tumors. This factor may be found, however, in all varieties of ovarian tumors. The luteinizing factor was found in the fluid of the cysts in two of three pregnant patients. The only cysts that yielded estrogen were the follicular cysts, in which it occurred in a concentration at least as high as in the normal follicle, and two specimens of germinal cysts in which the concentration was so low as to suggest that it was the same as in the blood stream. The association of menstrual irregularities with follicular cysts has been confirmed. Other ovarian tumors are far less often associated with disturbance of the menstrual rhythm. Pain in and swelling of the breasts before a period was noted more often in patients with follicular cysts than in patients with other types of benign ovarian tumors.

Pellagra Treated with Factor Obtained from Liver.—Yudkin and his associates report a case in which pellagra developed in a man with a gastro-enterostomy who lived on an eccentric diet. The pellagra yielded rapidly to treatment with a filtrate factor obtained by repeated adsorption of liver extract with fullers' earth.

Medical Journal of Australia, Sydney

1: 139-186 (Jan. 22) 1938

Sir Morell Mackenzie: A Medical Visionary. G. Halloran.—p. 139.
Some Aspects of Government Control of Tuberculosis. H. W. Wunderly.—p. 142.
Silicosis Among Metal Miners in Western Australia. K. R. Moore.—p. 147.
Polycythemia, Neutrophilia and Myelogenous Leukemia. T. J. F. Frank.—p. 154.
Fracture of the Pelvis. J. B. Colquhoun.—p. 158.
Personal Experience in Surgery of the Common Bile Duct. K. Ross.—p. 160.
Blood Urea Clearance Tests. G. A. Penington.—p. 163.

Practitioner, London

140: 113-224 (Feb.) 1938

Abdominal Pain as Guide to Diagnosis and Treatment. J. Morley.—p. 113.
Diagnosis and Treatment of Pain Referred to Abdomen from Thoracic Organs. M. Davidson.—p. 126.
Significance and Treatment of Indigestion. E. Bulmer.—p. 135.
Significance and Treatment of Vomiting. G. Evans.—p. 145.
Significance and Treatment of Diarrhea in Adults. S. W. Patterson.—p. 155.
Significance and Treatment of Obstinate Hiccup. E. Bellingham-Smith.—p. 166.
Laboratory Methods in Diagnosis of Gastro-Intestinal Disorders. R. G. Waller.—p. 172.
The Management of Insomnia. H. Cohen.—p. 181.
Testamentary Competency of a Patient with Aphasia. M. Critchley.—p. 189.
Varieties of Cardiac Dyspnea. R. O. Moon.—p. 197.
Diet in Health and Disease: VIII. Diet in Kidney Disease. R. Platt.—p. 205.

Archives des Maladies du Cœur, Paris

31: 1-172 (Jan.) 1938. Partial Index

Disturbances in Sinusal Rhythm and in Auriculoventricular Conductibility in Two Cases of Congenital Heart Disease. C. Laubry, P. Soulié and P. Vincent.—p. 1.
*Heart and Anoxia. L. Binet, M. V. Strumza and J. H. Ordóñez. —p. 11.
Hydatid Cyst of Heart. E. Benhamou, R. Montpellier and G. C. Solal. —p. 17.
Propagation of an Ascending Contraction Wave in the Ventricle of Frogs. R. Lutembacher.—p. 25.
Electrocardiogram of the Aged. A. Duthoit, H. Warembourg and Pinchart.—p. 34.

Heart and Anoxia.—Binet and his associates made experimental studies of mountain sickness on anesthetized dogs. To avoid the influence exerted by the diminution of atmospheric pressure, they used a gas mixture with a deficiency in oxygen but with a pressure of 760 millimeters of mercury. The anesthetized dogs inhaled the gas mixture through a tracheal cannula. The arterial pressure, the electrocardiogram and the respiration were recorded. Their observations reveal the impairment of the heart in acute anoxemia. The graphic recording of the arterial tension suggests the possibility of a cardiac arrest preceding the respiratory arrest. The electrocardiographic records taken in the course of anoxemia reveal five types of disorders: (1) the inversion of the T wave with an anoxemia corresponding to an altitude of 8,000 meters; (2) correspondence of the electromotive force and the duration of this wave, when it has become positive again, to an augmentation to an altitude of 14,000 or 15,000 meters; (3) the marked diminution of the height of the R deflection; (4) the disappearance of the P wave during the apnea caused by the anoxemia or the appearance of an auriculoventricular dissociation; (5) the appearance of a sinusal tachycardia at the time of a sudden return to the normal atmosphere.

Archives de Médecine des Enfants, Paris

41: 65-128 (Feb.) 1938. Partial Index

*New Observations on Infants Having Received BCG by Mouth and Living in a Contaminated Milieu. H. Stévenin, S. Lévi and Mme. J. de Prat.—p. 65.
Endocrine Therapy of Vulvovaginitides in Children. Fonesca e Castro. —p. 73.
Acute Rheumatismal Radiculitis in Children. Kadri Rachid Anday.—p. 86.

Observations on Children Having Received BCG.—Stévenin and his associates report observations on eighty-one children who had been given BCG by mouth and who remained in a tuberculous milieu. Although these children were not isolated, their tuberculous morbidity was below that of the nonvaccinated children, their mortality from tuberculosis was nil and the cutaneous reaction with tuberculin was more often negative in the children treated with BCG than in those who were not so treated. These observations were made simultaneously in two different dispensaries and they were in perfect concordance with those made in 1930. The authors conclude that not the slightest danger is involved in the administration of BCG to the children by the oral method, even when it is impossible to take all the precautions which are necessitated by this method of prophylaxis against tuberculosis.

Presse Médicale, Paris

46: 369-384 (March 9) 1938

*Symptomatologic Value of Weight of Fibrinogen in Blood During Hepatobiliary Disorders. C. Lian and P. Frumusan.—p. 369.
Physiologic Role of Histamine. I. Marcon, E. Athanasiu-Vergu, D. Chiricéanu, G. Cosma, N. Gingold and C.-C. Parhon.—p. 371.

Fibrinogen Content of Blood.—Lian and Frumusan describe a technic for the determination of the fibrinogen content of the blood. They combine 15 cc. of blood with 0.03 Gm. of finely pulverized potassium oxalate. After centrifugation, exactly 5 cc. of plasma is put into a precipitation tube containing 100 cc. of a coagulating solution that consists of 8 Gm. of sodium chloride, 1.25 Gm. of calcium chloride and 1,000 cc. of distilled water. The mixture is left standing for three hours at room temperature. The time required for coagulation varies. The mass forms a jelly, which is put into a square of fine cloth and is pressed out. When all the liquid has been forced out, it is put under a current of water. Then the cloth is opened and the fibrin is readily detached in the form of a small elastic ball, which is washed under a stream of distilled water. It has been verified that after this washing the coagulum of fibrin contains no more chlorides but only crystals of calcium oxalate, which form as a result of an excess of potassium oxalate employed in the collection of the blood. Then the ball of fibrin is pressed between two thicknesses of filter paper and is dried for six hours at a temperature of 110 C.; then it is weighed. The result is the weight of the fibrin plus the enclosed calcium oxalate. Then the fibrin is placed in a small platinum dish and is subjected to calcination; the ashes are subjected for ten minutes to an extremely high temperature to transform all the calcium oxalate into lime. The ashes are rapidly weighed and from their weight is calculated the weight of the calcium oxalate. To do this, the weight of the ashes is multiplied by 2.60 (the coefficient which corresponds to the calcium oxalate with one molecule of water). When the weight of the calcium oxalate is deducted from the weight of the ball of fibrin, the result is the real weight of the fibrin contained in 5 cc. of plasma. The test is made while the person is fasting. In normal subjects the figures were between 4 and 5 Gm. per liter of plasma. The authors describe and evaluate the results they obtained with this method. They found it valuable in certain infectious diseases, in some disorders with edema, and especially as a functional test for the liver. They think it should be used for the diagnosis and prognosis of hepatobiliary disturbances. Cirrhosis and icterus of the catarrhal type lead to a notable reduction of fibrinemia, while cancers of the liver and icterus by retention are accompanied by a normal or increased fibrinemia. From the diagnostic point of view, fibrinopenia indicates the cirrhotic nature of a large liver or of an unknown ascites. In icterus, fibrinopenia contradicts an icterus by retention and favors the diagnosis of catarrhal icterus.

Schweizerische medizinische Wochenschrift, Basel

68: 189-212 (Feb. 26) 1938. Partial Index

Chemistry and Physiology of Lipoid Metabolism. B. Flaschenträger. —p. 189.
Clinical Considerations on Lipoidoses. G. Bickel.—p. 192.
*Surgical Dilation of Laryngeal Stenosis in Bilateral Median Position of Vocal Cords as Result of Paralysis of Recurrent Nerve. E. Lüscher. —p. 199.
*Renal Complications in Tuberculosis of Bones and Joints. H. R. Landmann.—p. 200.

Surgical Treatment of Vocal Cords in Paralysis of Recurrent Nerve.—Lüscher points out that the bilateral median position of the vocal cords, resulting from a bilateral paralysis of the recurrent nerve, leads sooner or later to a severe laryngeal stenosis, so that tracheotomy cannot be avoided. All conservative methods of vocal and respiratory exercises should be tried before surgical measures are resorted to. Moreover, surgical injuries to the recurrent nerve in strumectomies often improve spontaneously in the course of months or even years, so that the glottis becomes again sufficiently wide. However, with rare exceptions the final status is reached after one or two years. After enumerating the difficulties that are encountered in widening the glottis, the author mentions the various interventions that have been recommended, nearly all of which have the object of widening the glottis at the level of the vocal cords. However, Wittmaack developed a surgical method which deliberately induces the lowering of one of the vocal cords. In two cases he found Wittmaack's operation a simple and reliable method for the correction of stenosis of the glottis in case of bilateral paralysis of the recurrent nerve with median position of the vocal cords. He would refrain from performing it only if the patient insists on an absolutely normal and clear voice.

Renal Complications in Tuberculosis of Bones.—Landmann asserts that the visceral complications of tuberculosis of the bones and joints involve most frequently the kidney and the discharging urinary passages. In the last five years he examined 159 patients with tuberculosis of the bones and joints for visceral complications. He found that 3.1 per cent had genitourinary complications. Secondary renal tuberculosis therefore assumes an importance as great as that of tuberculous meningitis and of miliary dissemination. The author recommends

that, during treatment of tuberculosis of bones and joints, the examination of the urine for the presence of tubercle bacilli should be a routine measure. Incipient renal tuberculosis causes no symptoms and, when they appear, the lesions usually have advanced so far that further dissemination has to be feared. Early recognition of renal tuberculosis makes early and more successful treatment possible.

Clinica Medica Italiana, Milan

69: 1-72 (Jan.) 1938

Bacterial Flora in Duodenum: Clinical Study. C. Lucchini and L. Gozzi.—p. 5.
Clinical, Anatomic and Therapeutic Study of Colitis. G. Invernizzi.—p. 49.
*Volume of Circulating Blood During Induced Fever. R. Traverso.—p. 61.

Volume of Blood During Induced Fever.—Traverso found that the volume of blood of normal persons increases in the course of fever induced by the giving of pyretogenic substances. There may be a predominance of erythrocytes over blood plasma, or the reverse. The volume of blood may increase less in persons who react with high fever to the pyrogenic substance than in those who react with slight fever. It is greater during the ascending phase of the fever than during its defervescence. The consumption of oxygen is increased. According to the author, the volumetric variations of the blood are due to special functional conditions of the cardiovascular organs in accordance with the predominance of sympathetic or vagal stimulations. A factor of great importance is the increase of the consumption of oxygen which results in increasing the flow of venous blood to the heart, the cardiac output and the functions of the cardiovascular system. In the phase of defervescence of fever the venous pressure gets lower and the cardiac output and the volume of blood diminish. The author concludes that the factors which stimulate hyperkinesia of the cardiovascular apparatus and mobilization of the blood from blood depots prevail, in the course of induced fever, over those which cause hyposthenia of the cardiovascular apparatus and retention of blood by the blood depots.

Pensiero Medico, Milan

16: 353-384 (Dec.) 1937

*Bismuth Salicylate in Treatment of Infections of Upper Part of Urinary Tract. G. Riva Crugnola.—p. 361.
Periodic Psychosis and Invalidism for Work. E. Rizzatti.—p. 372.

Bismuth Salicylate in Infections of Urinary Tract.—Riva Crugnola's treatment for infection of the urinary tract consists in intramuscular injections of 0.1 Gm. of bismuth salicylate every other day or 0.2 Gm. with intervals of three days between the injections up to a total number which varies from three to twenty injections. The treatment is indicated in cases of grave inflammation of the upper part of the urinary tract with fever, as well as in cases of long duration. The symptoms are ameliorated and the fever disappears after very few injections. The treatment is well tolerated and is not followed by accidents or complications except for a moderate stomatitis in some cases. The results are satisfactory regardless of the type of pathogenic bacteria in the given case. Satisfactory results are reported by the author in ten cases of pyelonephritis or pyonephrosis in which previous energetic medical treatment, the use of a permanent catheter and hypodermoclysis failed.

Día Médico, Buenos Aires

9: 605-664 (Aug. 2) 1937. Partial Index

Thoracoplasty: Resection of Upper Ribs by Suprascapular Route. R. Finochietto and H. D. Aguilar.—p. 606.
Malignant Staphylococcic Infection (Furuncles) of Face. D. Prat and A. M. Loubejac.—p. 609.
Female Sex Hormones. A. Beaune.—p. 618.
Cold Granulemia with Dissemination to Velum Palatinum. J. Palacio. A. F. Arnaudo and Y. Franchini.—p. 620.
*Puncture in Diagnosis of Cancer of Lung. A. Lanari and A. Pavlovsky.—p. 625.

Puncture of Lung for Diagnosis of Cancer.—According to Lanari and Pavlovsky the cytologic study of material taken from the lung by puncture of the structure is of value for an early diagnosis of cancer. The approximate location of the tumor is determined by the roentgen study of the thorax. The puncture and aspiration of tissue are performed with a needle such as that used for intramuscular injections or for lumbar puncture and a syringe by means of which a moderate aspiration can be done. The material in the syringe or, if there is none, the particles of tissues around the needle are spread on a glass slide, stained with May-Grunwald-Giemsa stain and examined under the microscope. Cancer cells can be identified by their abnormalities. They rarely divide in amitosis. They show abnormal division and uneven distribution of chromosomes. If they are in the phase of rest they show themselves almost as giant cells with alterations of the protoplasm, ruptured relations between the nucleus and the protoplasm and the nucleus and the nucleolus and abnormalities of size, structure and staining properties of the nucleus. Blastomatous cells are identified particularly by their nondifferentiation, which may be total, partial, uniform or polymorphic. The presence of cancer cells in the material which is under examination is the crucial test. Their absence may indicate that the needle failed to reach the cancerous zone. In this case it is advisable to perform a new puncture. It is indicated when the clinical symptoms and roentgen signs show cancer of the lung, whereas the inclusion of sputum of the patient and bronchoscopy give negative results. It is contraindicated in the presence of septic conditions and of echinococcosis of the lung. A diagnosis of cancer of the lung was made by the author in thirteen cases of a group of twenty-four in which the procedure was used. The different aspects of the cells are shown by illustrations in the article.

Medizinische Klinik, Berlin

34: 173-208 (Feb. 11) 1938. Partial Index

*Foot and Mouth Disease as Medical Problem. K. Wagener.—p. 173.
Diagnoses and Therapy of Light and Severe Forms of Erysipelas. H. Angerer.—p. 175.
*Sternal Puncture as Diagnostic Aid in General Bacteriologic Infections. A. Baserga and G. Barbagallo.—p. 178.
Problem of Centers for Collecting Mothers' Milk. Conti.—p. 183.
*Question of Harmful Properties of Cigaret Paper. A. Wenusch and R. Schöller.—p. 185.
Analysis and Pathogenesis of Dermatitis Atrophicans Lipoides Diabetica. H. Gottron.—p. 190.

Foot and Mouth Disease.—Wagener discusses the epizootic of foot and mouth disease which in September 1938 was brought into Germany from France, where it had been introduced by transports of Algerian sheep. The cause of the disease is a filtrable virus, which passes all so-called ultrafilters and retains its infectiousness in extremely high dilutions (1 : 10,000,000). Hecke succeeded in 1930 in culturing it on the skin of the fetuses of guinea pigs. Today the cultured virus can be obtained in large quantities. There are at least three varieties (A, B and C) of the virus of foot and mouth disease. Immunity produced by one type is not effective against the other types. The transmissibility to man has been demonstrated. After an incubation period of from three to four days, the human form of the disease shows the same two phasic character and the febrile course that is observed in animals. In the local manifestations it is usually possible to differentiate in the time of appearance between the formation of the primary blisters and the later generalization. The primary blisters develop at the port of entry, on the lips, the oral mucosa and the hands. The exanthem of mouth and foot disease consists of vesicles of various sizes, which develop rapidly, burst and heal without leaving traces. In case of nonfebrile disorders that are restricted to the oral cavity, the diagnosis of mouth and foot disease should be made with care. The diagnosis can be corroborated by introducing material from the blisters into the scarified skin of the plantar surface of the posterior extremities of guinea pigs.

Sternal Puncture in Diagnosis of Infections.—Baserga and Barbagallo aim to demonstrate that the intravital examination of the bone marrow is valuable in general infections; it is often positive when the examination of the blood is negative. Sternomedulloculture has produced good results in cases of brucellosis, more particularly in Malta fever (Brucella melitensis). It was observed that, whereas the blood culture is frequently negative, the sternomedulloculture is nearly always positive during the acute stage. Whereas the blood culture reveals positive results as a rule only in cases in which the temperature exceeds 39 C. (102.2 F.), the medulloculture gives positive results even if the temperature is only in excess of 37.5 C. (99.5 F.). They cite several case reports and point out

that medulloculture in cases of brucellosis proves that the bone marrow is a focus for the brucella organisms even during the nonsepticemic period. Attention is called also to the diagnostic significance of medulloculture in abdominal typhoid. Observations in more than 100 cases (made by the authors and other investigators) revealed the superiority of medulloculture over blood cultures. The bacillus disappears much later from the bone marrow than from the blood.

Question of Harmful Properties of Cigaret Paper.—Wenusch and Schöller state that the charge has been made repeatedly that cigaret paper produces harmful combustion products. Experiments have been reported to show that the smoke of cigarets, as a result of a higher carbon monoxide content, has a blood pressure increasing action. The authors, however, proved in earlier experiments that a carbon monoxide concentration, which is much higher than that in the smoke of cigarets, causes no increase in blood pressure. The authors made experimental studies which revealed that the paper of a cigaret of the usual size weighs approximately 0.04 Gm. and that this quantity cannot develop much in excess of 1 cc. of carbon monoxide. The negligible physiologic significance of this amount becomes more convincing when it is considered that it is distributed over approximately twenty drafts. The authors point out further that a cigaret weighing 1 Gm. gives off approximately 20 cc. of carbon monoxide; this quantity, distributed over an average of twenty drafts, signifies that approximately 1 cc. of carbon monoxide is taken in with each draft. Since one breath carries approximately 500 cc. of air, those inspirations during which smoke is inhaled have a carbon monoxide content of 0.2 volume per cent. However, after each breath containing this amount there are from seven to eight inspirations that are practically free from carbon monoxide. The accumulation of carbon monoxide in closed rooms in which considerable smoking is done is usually estimated too high.

Medizinische Welt, Berlin

12: 225-260 (Feb. 12) 1938. Partial Index

*Close Roentgen Therapy. H. Chaoul.—p. 225.
*Close Roentgen Therapy at Low Tension. J. M. Woodburn Morison and S. Bryan Adams.—p. 231.
Plesioroentgen Therapy. F. Perussia.—p. 234.
Further Experiences with Close Roentgen Therapy in Carcinoma of Skin and Lips. H.-G. Bode.—p. 235.
Close Roentgen Therapy in Malignant Tumors. A. H. Roffo and D. Giudice.—p. 237.
Ultraviolet Rays and Cancer. F. Holtz.—p. 238.

Close Roentgen Therapy.—Chaoul reviews the efforts made to improve the depth action of roentgen rays and later to imitate the action of radium rays. To make the action of roentgen rays similar to those of radium rays, the first requirement is to make the spatial distribution of the energy of roentgen rays in the tissues similar to that of radium rays. The author accomplishes this by close roentgen therapy with low voltage. He uses the relatively low tension of 60 kilovolts with a filtration of 0.2 mm. of copper and distance of from 3 to 5 cm. Two other factors in which the former type of roentgen therapy differed from radium therapy was the time factor and the total dosage. The author shows how these factors are altered in the technic of the close irradiation with low voltage and demonstrates that in close roentgen irradiation conditions are created which largely resemble those in contact radium therapy. To enlarge the sphere of application, a modification in the form of short distance roentgen therapy was developed as a substitute for the radium distance therapy (radium bomb). The author discusses the results obtained with the new form of roentgen therapy in six years. The method was employed chiefly in carcinomas of the skin and of the lips. In one table are recorded not only the cases treated at his own clinic but those of several other clinics. This table lists 595 cases and shows that in 95.4 per cent of the cases primary freedom from symptoms was obtained. He describes the results of close roentgen irradiation in cases of exposed carcinoma of the rectum. Nearly all of the fourteen cases treated with this method were inoperable, but primary freedom from symptoms was achieved in twelve of the fourteen cases.

Close Roentgen Therapy at Low Tension.—In this report, Woodburn Morison and Bryan Adams report their experiences with Chaoul's method of close roentgen therapy at low tension. They show that it fulfils one of the chief requirements of radiation therapy; namely, it destroys the diseased tissues and preserves the healthy tissue. With the apparatus they used, the dose is easily regulated and permits great variations. In cases of rodent ulcers they usually applied 4,800 roentgens to the base of the tumor. Distributed over a period of ten days, the total surface dose usually amounted to 6,000 roentgens. In other cases of rodent ulcer the 6,000 roentgens was administered at once or in three instalments. The results seemed to be better when the dose of 6,000 roentgens was distributed over ten days. In cases of squamous cell carcinoma, the authors apply a dose of 6,000 roentgens to the base of the tumor. This dose is likewise distributed over ten or twelve days. To adenocarcinoma they apply from 7,000 to 10,000 roentgens in the course of twelve days. Melanotic tumors are treated with from 10,000 to 15,000 roentgens. Nonmalignant tumors, such as papillomas, are usually treated with a single dose of 4,000 roentgens. Cicatricial keloids respond to a daily dose of 400 roentgens and to a total dose of from 2,400 to 3,000 roentgens. On the basis of two years' experience with the close roentgen therapy at low tension, the authors are convinced that it represents the most valuable addition to roentgenology in recent years.

Monatsschrift für Kinderheilkunde, Berlin

72: 1-178 (Jan. 12) 1938. Partial Index

*Prognostic Significance of Determinations of Rest Nitrogen in Diphtheria. K.-H. Höffken.—p. 1.
Influence of Ultra-Acoustic Sound Waves on Diphtheria Toxin. M. Kasahara and T. Takagi.—p. 8.
Value of Acidophilus Milk in Therapy of Dyspepsia in Nurslings. K.-H. Kähler.—p. 18.
Studies of Bone Marrow in Living Rachitic Infant. P. Liessens.—p. 22.
*Formation of Antitoxin Following Active Immunization with Diphtheria Toxoid. J. Kreutzer.—p. 44.
*Acetonemic Vomiting with Fatal Outcome. Irmgard Scharff.—p. 51.

Prognostic Significance of Rest Nitrogen in Diphtheria.—Höffken says that his observations demonstrated that the determination of the rest nitrogen in patients with diphtheria is of no value for prognosis. Rest nitrogen values give no definite indications regarding the possible development of complications, even those of a severe nature. In two fatal cases of toxic diphtheria he observed that the rest nitrogen values became high only when the clinical picture indicated the fatal outcome. In the severe cases in which the prognosis is especially doubtful he found that the rest nitrogen values fluctuated greatly.

Antitoxin Following Immunization with Diphtheria Toxoid.—To determine the effectiveness of precipitated vaccines, Kreutzer investigated the antitoxin formation following their administration. He made his tests with a diphtheria toxoid, 1 cc. of which contains 95 protective units. He vaccinated children between the ages of 6 and 14 years. The investigations revealed that a single injection of the diphtheria toxoid produces adequate antitoxin values in 82 per cent of the children. This favorable result can be improved still more when the quantity of vaccine to be injected is divided into two doses, administered with an interval of four weeks. The author thinks that his results justify active immunization against diphtheria.

Acetonemic Vomiting with Fatal Outcome.—Scharff reports the histories of five cases of acetonemic vomiting, which terminated in death. All cases showed the same symptoms; acetone was detected in the respiratory air and in the urine. The attacks of vomiting developed without other demonstrable causes. In all the children the vomiting had persisted for one or several days before hospitalization, so that when the children reached the clinic they were already in an extremely dehydrated and somnolent condition. It was possible to arrest the vomiting and to introduce by mouth fluids, salt and sugar. The cessation of vomiting and these measures resulted in an improvement, which, however, was of short duration. The subsequent exacerbation was characterized by renewed vomiting. Whereas previously the stools had been normal or absent, they were now frequent and resembled rice water. The fact that these stools had an extremely high sugar content is considered as proof that during this final stage of the disease the resorption capacity of the intestine is impaired. Necropsies were made in four of the five cases and fatty degeneration of the liver was found in all. The author suggests that degeneration of the liver is the

final result of disturbance of the carbohydrate and fat metabolism. She calls attention to the role of the adrenals in the exchange of sodium chloride and in the resorption capacity of the intestinal mucosa. Since acetonemia is favored by the absence of the adrenocortical hormone, the author suggests that during the threatening stages of acetonemic vomiting adrenal cortex extract might be tried in addition to the infusions of sodium chloride.

Wiener klinische Wochenschrift, Vienna

51: 193-224 (Feb. 18) 1938. Partial Index

Rare Forms of Syphilis of Nervous System. D. Paulian.—p. 197.
*Determination of Vitamin C in Living Organism. H. Rotter.—p. 205.
Simple Method for Determination of Rapidity of Diffusion of Electrolyte in Gelatinated Blood Serum and Its Clinical Application. J. Glass.—p. 206.
Eye Symptoms in Internal Diseases. J. Urbanek.—p. 208.
Marginal Cases Between Neuroses and Psychoses and Their Treatment. E. Stengel.—p. 211.

Determination of Vitamin C.—Rotter says that, whereas C-avitaminosis is rare, C-hypovitaminosis is frequent. He directs attention to the role of vitamin C in hemorrhages, in diseases of the blood and in infectious diseases, particularly pneumonia, and also to the interesting fact that cancer tissue contains comparatively large amounts of vitamin C. In his own studies on the vitamin C content of the blood and urine he resorted to titration by dichlorphenolindophenol. It occurred to him to simplify matters by injecting blue dyestuff into the skin, forming a small wheal, and then watching the reducing action of the vitamin C (cevitamic acid) on the dyestuff. Injecting into the plantar skin of guinea pigs with and without scurvy small amounts of a normal 1,000 solution of dichlorphenolindophenol, the author observed the behavior of the resulting wheals. He found that in the skin of the animals with scurvy the discoloration required four times the length of time required in healthy animals. He investigated whether the process of discoloration is a chemical process, a reduction or a biologic process, a resorption. He describes studies on patients which proved that the reduction of dichlorphenolindophenol in the intracutaneous wheals is effected by cevitamic acid. A normal 400 solution of dichlorphenolindophenol was best suited for the intracutaneous injection. The wheal should be about 2 mm. in diameter. When this technic was used, it was found that a reduction time of less than five minutes indicated saturation and of between five and ten minutes a normal supply, but that a reduction time in excess of ten minutes indicated a deficiency. The author maintains that this simple method, which can be used by the practitioner, can be substituted for the rather complicated tests on the blood and urine. He proved this by comparative control experiments.

Wiener medizinische Wochenschrift, Vienna

88: 201-228 (Feb. 19) 1938. Partial Index

*Indications for Surgical Treatment of Acute Severe Gastric Hemorrhage. H. Finsterer.—p. 201.
Problem of Cyanosis in Congenital Cardiac Defects of Early Childhood. K. Hochsinger.—p. 207.
Neurosis and Somatic Symptoms. F. M. Meyer.—p. 209.
Hormone Therapy in Form of Respiratory Ferment Ointments, a Promising Method in Presbycusis and Other Forms of Hardness of Hearing. O. Zajicek.—p. 213.

88: 229-256 (Feb. 26) 1938

Roentgenologic Aspects of Epilepsy in Children. A. Schüller.—p. 229.
*Indications for Surgical Treatment of Acute Severe Gastric Hemorrhage. H. Finsterer.—p. 230.
Problem of Cyanosis in Congenital Cardiac Defects of Early Childhood. K. Hochsinger.—p. 235.
*Microscopically Visible Changes in Gonadal Tissue Following Ligation of Deferent Ducts. K. John.—p. 237.

Indications for Surgical Treatment of Gastric Hemorrhages.—Finsterer summarizes his point of view on the treatment of acute gastric hemorrhages as follows: 1. In acute hemorrhage from a definitely demonstrated ulcer, he advises immediate operation because that is the most reliable method for the arrest of the hemorrhage. It prevents fatalities resulting from later erosion hemorrhages due to a burrowing ulcer and it also prevents perforation into the free abdominal cavity. A preoperative or postoperative blood transfusion is necessary only in severe hemorrhages resulting from arrosion of a large artery. 2. If after failure of internal treatment an ulcer persists in bleeding, the author recommends late operation. In cases in which it is doubtful whether the hemorrhage persists, he recommends an expectant attitude, because the prolonged anemia has so impaired the internal organs that even after blood transfusion the operation may be a failure. 3. In case of acute hemorrhage from a probable ulcer he recommends an exploratory laparotomy under local anesthesia, so as to exclude a penetrating ulcer. If an ulcer is detected, the resection should be done in the typical manner. In case of a hemorrhage that is the result of an erosive gastritis, the resection is advisable if the disorder has existed for many years and relapses constantly; otherwise the abdomen is closed and the internal treatment is continued. 4. If the hemorrhage appears suddenly, without the slightest previous disturbances, an acute, flat ulcer is probably the cause. In this case internal treatment is advisable. If the loss of blood is considerable or the hemorrhage recurs, the internal treatment should be supported by a blood transfusion. 5. If the existence of a hepatic cirrhosis is certain, exploratory laparotomy seems advisable, if only the slightest gastric disturbances (e. g., heartburn) have preceded, because, on account of the stasis, the patient may bleed to death even from an eroded vein of a flat ulcer. 6. When hemorrhage occurs in elderly patients (beyond the age of 60 years) or in an existing arteriosclerosis, the author considers surgical treatment even more urgent than in young persons.

Changes in Gonads Following Ligation of Deferent Ducts.—John ligated the deferent ducts of rats, rabbits and guinea pigs and studied the histologic changes in the testes and epididymides. He found that at first there are no changes but that then hypertrophy becomes noticeable. The first signs of hypertrophy appear in guinea pigs and rats after six weeks and in rabbits after eight or ten weeks. The tubuli contorti are filled with spermatozoa and the testes are slightly swollen. This stage of excessive filling gradually subsides and after a time the testicular tissue appears normal once more. However, other processes are now in preparation. The reduced elimination of the sexual products effects changes first in Sertoli's cells; their plasma gradually disappears, while the nucleus becomes enlarged at first but later shrinks and disintegrates. At the end of ten or twelve months hardly any intact Sertoli cells remain. The author discusses the changes in the seminiferous tubules and those in the interstitial tissue or Leydig's cells. The latter likewise become atrophied. The tissues of the epididymides, however, show a different behavior from those of the testes. The total sterilization of the animals, by ligation of the deferent ducts, is followed by a gradual obliteration of the generative tissues, which necessarily leads to abolishment of the sexual functions. Thus ligation actually produces sterilization, but it also impairs such sexual functions as libido and potentia coeundi. The author emphasizes that the changes in the gonads do not develop so rapidly that they could be completed within a few weeks. He found that in the experimental animals the final stage has not been reached until at least twelve months has elapsed since the ligation of the deferent ducts.

Sovetskiy Vrachebnyy Zhurnal, Leningrad

161-240 (March) 1938

Soviet Rheumatology for the Past Twenty Years. M. V. Chernorutskiy.—p. 163.
Prolonged Infections, Serositis and Polyserositis. V. A. Valdman.—p. 169.
The Value of Roentgenology in the Diagnosis and Classification of Pulmonary Tuberculosis. O. O. Den.—p. 177.
*Pregnancy, Labor, Abortion and Gonorrhea. A. P. Kushelevskiy.—p. 187.
Intravenous Alcohol Therapy of Pulmonary Gangrene and of Pneumonia. K. A. Egorov and P. T. Zaguskina.—p. 195.
Cerebrospinal Fluid in Tuberculous Meningitis of Adults. M. Kh. Midiants.—p. 197.
The Origin of the Water Wheel Murmur. N. D. Sabelnikov.—p. 205.

Pregnancy, Labor, Abortion and Gonorrhea.—Kushelevskiy reports a clinical study of two groups of women, carried out in the Moscow Institute for Protection of Motherhood. The first group comprised 876 obstetric cases, while the second consisted of 450 pregnant women who wished to be aborted (this work was done prior to 1935). The author feels that much can be done by the obstetrician-gynecologist to diminish the

incidence of gonorrhea by diagnosing and treating cases among the obstetric patients admitted to maternity hospitals, dispensaries and consultation stations. Patients in whom the diagnosis of gonorrhea was made were treated and kept under observation during gestation and after, the total period being not less than two years. The symptoms of gonorrheal infection in pregnant women did not present pathognomonic signs of the disease. The diagnosis could be arrived at only after detailed clinical and laboratory investigations. This was particularly true of the chronic cases. Despite the more severe character of the disease during pregnancy and the postpuerperal period, smears were positive in only a few cases. The repeatedly positive Bordet-Gengou serologic test proved to be valuable. A greater number of complications took place in cases in which conception took place in the presence of an ascending gonorrheal infection and in cases in which gonorrheal infection developed toward the end of the gestation. Artificial abortion in gonorrheal patients results in complications in from 30 to 33 per cent. Women in whom gonorrhea was demonstrated were given a systematic treatment consisting of local applications, physical therapeutic measures, gonorrheal vaccine and autohemotherapy. Disappearance of the infection and return to a working capacity were obtained in the majority of cases.

Norsk Magasin for Lægevidenskapen, Oslo

99: 137-240 (Feb.) 1938

*Statistical Study of Three Hundred and Fifty-Three Cases of Intracranial Tumor, in Part Verified. A. Torkildsen.—p. 137.
Intrathoracal Tumor with Calcification (Roentgenologic By-Result): Case. B. Werenskiold.—p. 151.
Cushing's Syndrome. V. Fürst Jr.—p. 157.
Transverse Lesions of Spinal Cord After Lumbar Puncture (Attempted Spinal Anesthesia): Two Cases. A. Høyer.—p. 165.
Splenic Cyst of Traumatic Origin: Case. P. Rosenberg.—p. 177.
Congenital Cystic Lung. J. Frimann-Dahl.—p. 181.
Hereditary Dystrophic Epidermolysis Bullosa: Two Cases. S. W. Erichsen.—p. 185.
Terminal (Regional) Ileitis. A. Kristoff.—p. 192.
Exophthalmic Goiter with Lipodystrophia. H. Rasmussen.—p. 197.
Grönblad-Strandberg Syndrome: Angioid Striae of Eye Fundus—Pseudoxanthoma Elasticum. K. Hübert and B. Nyquist.—p. 201.

Intracranial Tumors.—Of the 353 cases of intracranial tumor, of which 154 were verified on operation or at necropsy, 189 were in male and 164 in female patients. Five patients were under the age of 5 years and none were over 66; the greatest frequency was in the age group from 36 to 40. Torkildsen says that the most important symptoms named by the patients were, in order, headache, vomiting, paralyses of cranial nerves, dizziness, loss of vision, focal epilepsy and pareses of extremities. Objective examination on admission showed mental disturbance in 190 cases (53 per cent). Of the pareses of the cranial nerves the most common were those of the nerves of the eye muscles and of the facial nerve, together with reduced function of the optic nerve. Choked disk was present in 200 cases. In 153 of 167 cases the cell content of the spinal fluid was less than 15/3, in 122 out of 161 the albumin content was less than 1/25 and in 127 out of 154 the globulin content was less than 1/3. The pulse frequency was 50 or less in four cases, between 50 and 60 in eighteen, and more than 90 in forty-eight. There were no special peculiarities in pulse frequency in relation to age. No connection was seen between high blood pressure and high pressure of the spinal fluid.

Ugeskrift for Læger, Copenhagen

100: 71-100 (Jan. 27) 1938

Treatment of Chronic Degeneration of Heart. N. R. Christoffersen.—p. 71.
Insulin and Metrazol Shock Treatment in Schizophrenia. O. J. Nielsen.—p. 80.
*Myelomatosis: Diagnosis and Differential Diagnosis. A. Grut.—p. 85.
Treatment of Hay Fever. Lisbeth Lind-Hansen.—p. 87.
Peculiar Widal Reaction. J. Ernst and F. Kauffmann.—p. 88.
Miliary Tuberculosis in Puerperium: Report of a Case. C. Maarssø.—p. 89.
Adiposogenital Dystrophy Treated with "Physex." H. Bennike.—p. 90.

Myelomatosis.—Grut's case was characterized by unusually high hyperproteinemia, rapid formol-gel reaction, absence of coagulum retraction, infiltration of organs by plasma cells and rapid clinical development. The diagnosis was verified by sternal puncture. Bence Jones proteinuria was confirmed by careful examination. He considers (1) myelomatosis with change only in the bone marrow but spread diffusely through the bone system, (2) myelomatosis with limited tumors in bone marrow and bone substance and (3) myelomatosis with diffuse infiltration of bone marrow and bone substance, eventually other organs, by tumor cells. The first and third forms differ widely in the intensity of the pathologic changes. With slight intensity of the process, transition from the first to the second form is thought likely; with considerable intensity, as in the case reported, there is direct transition from the first to the third form, with fatal outcome in a short time. In the first form the symptoms are vague and the characteristic picture does not appear until there are localized multiple myelomas. Examination of the blood gives no information. The x-ray results are not pathognomonic. Increase in the serum globulins, however, is characteristic; only one case of myelomatosis with normal sedimentation and formol-gel reaction has been described. These two reactions are thus of the greatest practical value in the diagnosis of myelomatosis. In 50 per cent of the cases there is Bence Jones proteinuria, which occurs only occasionally in other disorders; it can be established in 80 per cent of the cases if examinations are frequent and made for months. Establishment of the protein may be difficult if simultaneously abundant serum albumin is present in the urine. Certain diagnosis depends on sternal puncture. Sedimentation reaction is called for in all cases with resistant pain in the back, formol-gel reaction in all afebrile patients with high sedimentation reaction, and if the formol-gel reaction is positive, sternal puncture is indicated. The formation of the serum globulins and Bence Jones protein is assumed to take place in the bone marrow, especially in its plasma cells. The high hyperproteinemia in the author's case is ascribed to penetration of not only the bone marrow but also numerous organs by the plasma cells. The quantity of the tumor cells and not their quality apparently determines the degree of hyperproteinemia.

100: 129-158 (Feb. 10) 1938

Hypovitaminosis. A. Grut.—p. 129.
Occurrence of Trachoma in Copenhagen. J. P. Jensen.—p. 131.
*Danish Family with "Cameloid" Blood Corpuscles: Constitutional Elliptocytosis, Ovalocytary Anemia. A. Bertelsen.—p. 136.

Danish Family with "Cameloid" Blood Corpuscles.—Bertelsen says that elliptocytary or ovalocytary anemia easily escapes clinical recognition and that its frequency is unknown. At present ten reports on constitutional elliptocytosis have been reported, concerning either cases in which the elliptic deformity of the red blood corpuscles was accidentally discovered and is not believed to be connected with any disorder or cases in which it is regarded as the disposing cause of long-continued anemia and febrile conditions. Familial occurrence of twelve cases of elliptocytosis in four generations is here reported, including one case of grave elliptocytary anemia in a boy, aged 3 years, observed for a considerable time. The most marked elliptocytotic pictures were in the boy and his mother, but in no case was the diagnosis in doubt. The number of deaths in childhood in the family has not exceeded that in most families. Elliptocytosis is regarded as a constitutional anomaly with dominant transmission, but the heredobiologic relations are still largely unsolved. In no reported case have the anemia and its complications been fatal. When a true anemia accompanied by chronic infection has developed, the disease has been of unusually long duration. Except in Roth and Jung's case, the later fate of the patients is unknown. In four of the seven cases clinically described, the liver and spleen were enlarged, in two splenomegaly was a prominent symptom, and in two there was jaundice. On examination in the counting chamber the form of the blood corpuscles may pass unnoticed and in smears the deformity may perhaps be considered an artificial product or disregarded as an unimportant or peculiar form of anisocytosis. In chronic sepsis with enlargement of the spleen and anemia, complete examination of the blood with this anomaly in mind is advised. The elliptocytosis itself does not seem amenable to any therapy. Hunter and Adams report improvement of the anemia after treatment with liver extracts, and Roth and Jung after treatment with solution of potassium arsenite. The author found that similar treatment was of doubtful value in the case that he reports, but blood transfusion helped the patient through a critical period.